DOCUMENT RESUME

ED 313 211 RC 017 355

TITLE	Rural Economic Development in the 1980s: Preparing for the Future.
INSTITUTION	Economic Research Service (DOA), Washington, DC. Agriculture and Rural Economics Div.
REPORT NO	AGES-87-0724
PUB DATE	Jul 87
NOTE	421p.; For related document, see ED 298 309.
PUB TYPE	Reports - Research/Technical (143) -- Information Analyses (070) -- Collected Works - General (020)
EDRS PRICE	MF01/PC17 Plus Postage.
DESCRIPTORS	*Economic Change; Employment Patterns; *Government Role; *Policy Formation; *Public Policy; Rural Areas; *Rural Development; *Rural Economics; Rural Population; Rural to Urban Migration; Structural Unemployment

ABSTRACT

Seventeen papers review recent changes in the structure and performance of the rural economy and examine alternative policies to facilitate the adjustment of displaced people and their communities. Some point to economic structural change in the 1980s as the cause of financial stress in rural America, in sharp contrast with the 1970s when growth and economic vitality were the dominant rural themes. Results indicate a rural economy that has shifted from dependence on natural resource-based industries to increasing reliance on manufacturing and low-wage, low-skilled service industries. At the same time, the rural economy has apparently become more closely linked to national and global economies, making it more sensitive to changes in macro policy and global competition. Downturns in industries that are important to rural areas indicate a national rural decline accompanied by underdeveloped human resources. Problems associated with rural policy are viewed at the macro, sectoral, territorial, and human resource levels. The analysis of rural conditions and economic forces at work leads to observations about alternatives for future rural policy: (1) future development policies must allow industries to modernize and become more competitive; (2) rural economic policies that depend on the revival of farming, mining, or energy sectors are unlikely to succeed; and (3) states may be key to promoting collaboration among neighboring rural communities. The document concludes that the choice of national rural development policy is ultimately political, a balancing of interests among groups whose futures are being affected. The various papers in this collection include about 275 references and numerous tables, graphs, and maps. (TES)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

Agriculture
and Rural
Economy
Division

Rural Economic Development in the 1980's

Preparing for the Future

ED313211

RC 017355

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Dept. of Agriculture

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it

☐ Minor changes have been made to improve reproduction quality

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

BEST COPY AVAILABLE

RURAL ECONOMIC DEVELOPMENT IN THE 1980'S: PREPARING FOR THE FUTURE. Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. ERS Staff Report No. AGES870724.

ABSTRACT

Structural change in the economy is causing economic stress in rural America, in sharp contrast with the 1970's, when growth and economic vitality were the dominant rural themes. The papers in this volume provide up-to-date information on changes in the structure and performance of the rural economy and on alternative policies to facilitate the adjustment of displaced people and their communities.

Keywords: Rural areas, rural economy, rural development, rural population, government programs, public services, rural development policy.

```
*******************************************************
* This report was reproduced for limited distribution *
*     to the research community outside the U.S.      *
*              Department of Agriculture.             *
*******************************************************
```

1301 New York Avenue, NW.
Washington, DC 20005-4788

July 1987

FOREWORD

Structural change in the economy is causing economic stress in rural America, especially in areas with a heavy dependence on agriculture, mining and energy, and manufacturing. This contrasts sharply with the 1970's when widespread economic growth and vitality were the dominant rural themes. Rural economies in the 1980's are characterized by slow job growth and high unemployment, outmigration and reduced population growth, and underdeveloped human resources.

In response to these conditions, the Senate Appropriations Committee directed the Economic Research Service to "... conduct a study to identify alternatives for maintaining and strengthening economic development in rural communities...." This report, which responds to the Committee's request, synthesizes existing knowledge on rural issues. The report contains up-to-date information on changes in the structure and performance of the rural economy and on alternative policies to help displaced people and rural communities adjust to the change.

Selecting a national rural development policy is ultimately a balancing of the interests of groups whose opportunities are being affected. We identified macroeconomic, sectoral, territorial, and human resource policies as the four general elements of public intervention affecting rural economic development. Our research suggests that macroeconomic and human resource policies are likely to be most effective in dealing with problems facing rural areas in the 1980's and '90's. Human resource policies in particular help people to adapt to changing technologies and marketplace conditions. Such adaptations are essential if rural areas are to maintain a competitive position in the national and global economies and share in economic growth. The future role of sectoral and territorial policies is less clear. They may encourage resources to become trapped in inefficient locations and industries.

We hope that this report provides information useful to the Congress in debating and making the hard choices among alternative policies.

John Lee

JOHN E. LEE, Jr.
Administrator

182 60417

ACKNOWLEDGMENTS

This study could not have been completed without the willing and intelligent participation of numerous Economic Research Service (ERS) staff members. In addition to authoring 13 of 17 papers, ERS staff served unselfishly as peer reviewers and editors, and they participated in all phases of the production: word processing, proofreading and graphic design. This was a large study conducted under tight time deadlines. While the authors are ultimately responsible for their own work, these contributions helped immeasurably to enhance the quality of study.

Overall management of the study was provided by a steering committee comprised of David Brown (Chair) Herman Bluestone, David McGranahan, Sara Mazie, and Norman Reid. ERS authors were Leonard Bloomquist, Herman Bluestone, David Brown, Margaret Butler, Kenneth Deavers, Thomas Hady, David Harrington, Molly Killian, Richard Long, James Malley, David McGranahan, Dan Milkove, James Miller, Mindy Petrulis, Norman Reid, Donn Reimund, Peggy Ross, Patrick Sullivan, and Linda Swanson. Outside authors were Edward Blakely and Ted Bradshaw (University of California-Berkely), Emery Castle, Ann Schreiber and Bruce Weber (Oregon State University), William Fox (University of Tennessee), Vernon Ryan (Iowa State University) and Stuart Rosenfeld (Southern Growth Policies Board). The Peer Review Panel consisted of Max Jordan (Chair), Calvin Beale, Susan Bentley, Douglas Bowers, Thomas Carlin, Robert Coltrane, Elliott Dubin, Gregory Gajewski, Nina Glasgow, Fred Hines, John Kitchen, Celeste Long, Richard Reeder, Jerry Schluter, Jerry Stam, and Thomas Stucker. Editorial services and graphic design were provided by Thomas McDonald (Chair), James Carlin, Adrie Custer, Martha Frederick, Linda Ghelfi, Debra Haugan, John Hession, Carolyn Riley and James Sayre. The report could not have been completed in such a timely manner without the outstanding support services provided by Gwen Coleman (Chair), Aundrea Baker, Sharon Davis, Blenda Gately, Sybil Glascock, Joseph Lockley, Lisa Nanches, Betty Nichols, and Carmen Pigler.

The enthusiastic support of Kenneth Deavers, Director of the Agriculture and Rural Economy Division (ARED), and Bob Robinson, ERS Associate Administrator, is warmly acknowledged. They encouraged us to do much more than would have been required to merely satisfy the Congressional mandate, and they provided the resources to get the job done. Finally, the entire ARED staff deserves recognition for their patience and understanding during the last eight months, when support services and collegial resources were stretched thin because of the "Senate Study." Thanks to all of you for your intelligence, enthusiasm and good cheer.

David L Brown

DAVID L. BROWN, Chairperson
Steering Committee

CONTENTS

Page

v Executive Summary

1-1 Chapter 1--Rural Change and the Rural Economic Policy Agenda for the 1980's, by David L. Brown and Kenneth L. Deavers.

2-1 Chapter 2--The Role of Rural Workers in the National Economy, by David A. McGranahan.

3-1 Chapter 3--Performance of the Rural Manufacturing Sector, by Leonard E. Bloomquist.

4-1 Chapter 4--Performance of the Agricultural Sector, by Donn Reimund and Mindy Petrulis.

5-1 Chapter 5--The Performance of Natural Resource Industries, by Bruce A. Weber, Emery N. Castle, and Ann L. Shriver.

6-1 Chapter 6--Prospects for Service Sector Employment Growth in Nonmetro America, by James P. Miller and Herman Bluestone.

7-1 Chapter 7--Human Resource Base of Rural Economies, by Linda L. Swanson and Margaret A. Butler.

8-1 Chapter 8--The Economic Performance of Rural Labor Markets, by Molly Sizer Killian and Thomas F. Hady.

9-1 Chapter 9--Rural Policy Objectives: Defining Problems and Choosing Approaches, by J. Norman Reid and Richard W. Long.

10-1 Chapter 10--The Impact of Macroeconomic Policies on Rural Employment, by James R. Malley and Thomas F. Hady.

11-1 Chapter 11--Unanticipated Consequences of Government Programs on Rural Economic Development, by Ted K. Bradshaw and Edward J. Blakely.

12-1 Chapter 12--Agricultural Programs: Their Contribution to Rural Development and Economic Well-Being, by David H. Harrington.

13-1 Chapter 13--Public Infrastructure and Economic Development, by William F. Fox.

14-1 Chapter 14--Financial Aid Programs as a Component of Economic Development Strategy, by Daniel L. Milkove and Patrick J. Sullivan.

15-1 Chapter 15--Human Resource Policies and Economic Development, by Peggy J. Ross and Stuart A. Rosenfeld.

16-1 Chapter 16--The Significance of Community Development to Rural Economic Development Initiatives, by Vernon D. Ryan.

17-1 Chapter 17--Choosing a Rural Policy for the 1980's and '90's, by Kenneth L. Deavers.

EXECUTIVE SUMMARY

The Rural Development Situation

While growth and economic vitality were the dominant rural themes in the 1970's, structural change and economic dislocation have become overriding rural issues in the 1980's. In recent decades, the rural economy has shifted from heavy dependence on natural resource-based industries to more reliance on manufacturing and services industries, much of it in low-wage, low-skill jobs. This industrial restructuring has left rural areas open to rapid shifts in production technologies which appear to have reduced their competitive position in the national and international economy. At the same time, the rural economy has become more closely tied with national and global economies, making it more sensitive to changes in macro policy, business cycles, and global competition.

In the 1980's, downturns in several industries important to rural areas (agriculture, mining and energy, and manufacturing) coincided, turning what would normally be local or regional problems into a widespread rural decline of national proportions. Rural economic adjustment and stress in the 1980's include:

Slow Rural Job Growth and High Unemployment

- Overall rural employment growth since 1979 (the peak of the last business cycle) has been slower than urban employment growth: 4 percent vs. 13 percent. Slow growth is concentrated in the natural resource and goods-producing industries. Counties depending on mining and energy extraction actually declined by 9.5 percent in total employment, while agriculture counties showed virtually no growth and manufacturing counties grew by only 2.7 percent.

- Stress in the rural economy is indicated by high unemployment rates. As of 1986, more than 1,000 rural counties had annual average unemployment rates of 9 percent or higher. High unemployment rates are concentrated in the manufacturing counties of the South and East, and the mining and energy counties of Appalachia, the Gulf Coast, and scattered areas of the Northwest. Measured unemployment is lower in agricultural areas, but for technical reasons unemployment rates are not a good measure of economic stress for these areas.

Reduced Nonmetro Population Growth

- Slowed nonmetropolitan population growth in the 1980's seems to signal a return to the generalized rural decline of the 1950's and 1960's. In 1985-86, nonmetro areas lost 632,000 persons to metro areas due to outmigration. This is a larger outmovement than the annual average of either the 1950's or 1960's, and a dramatic turnaround from the 1970's, when nonmetro areas had an annual net migration gain of over 350,000 persons.

- Almost half of all nonmetro counties (1,160) lost population during 1983-85, nearly three times the number (460) that lost population during the 1970's. Population decline and outmigration are concentrated in the Plains and Western Corn Belt, but have recently spread to the Lower Great Lakes and parts of the South.

- Slow rural population growth and net outmigration are responses to a shift in the relative performance of rural economies, but they do not necessarily indicate that the remaining population is impoverished or that communities lack essential services and facilities. While these outcomes may be the result in some areas, in other areas the persons left behind may have improved income and wealth positions and the communities may have an oversupply, rather than a lack, of public facilities.

Underdeveloped Rural Human Resources

- Throughout the century, a disproportionate share of the Nation's poor have resided in rural areas. In 1985, the poverty rate of the nonmetro population was 18.3 percent compared with 12.7 percent of the metro population. The metro poverty rate has been falling during the recovery from the recession of the early 1980's, but the nonmetro rate has not.

- The characteristics of the nonmetro poor differ from those of the metro poor. The nonmetro poor are more likely to be elderly, white, and living in the South. Work effort is much higher in poor nonmetro families. Over two-thirds of poor nonmetro families had at least one worker and one-fourth had two or more workers. As a result, the structure and performance of rural labor markets have an important impact on rural poverty.

- Nonmetro persons continue to lag behind metro persons in years of formal education. The gap in high school completion has persisted at about 10 percentage points since 1960, and the gap in college completion has actually increased since that time. Residential differences in educational attainment are even more marked for racial minorities. Low educational attainment and illiteracy are especially high in the South. School dropout rates are also high, and expenditures for public schooling are relatively low in the region, suggesting that little progress is currently being made in reducing educational disadvantage.

These conditions do not characterize all rural communities, because rural America is very diverse. Accordingly, generalizations frequently mask important differences among local areas. For example, while nonmetropolitan areas as a whole experienced outmigration during the 1980's, retirement/recreation areas have continued to grow rapidly. And while the overall industrial composition of the rural economy is quite similar to that of urban America, the economies of individual local areas tend to be specialized. About 700 of the 2,400 nonmetro counties specialize in agriculture, nearly 700 more are principally dependent on manufacturing, and about 200 depend heavily on mining and energy extraction. Relatively poor performance in these three sectors has been the principal cause of rural economic stress in the 1980's. Since these industries tend to be regionally concentrated, targeted State and multi-community development strategies are more appropriate than a uniform national rural development approach.

Elements Of A Rural Policy

Macro Policy - The rural economy is now an integral part of the national and global economy. Overall, rural employment is slightly more sensitive to changes in macro policies than is urban employment. These differences are particularly pronounced in the nonmetro Northeast and South, because of the relatively greater importance of manufacturing in these regions. The period from 1980-85 illustrates the fact that monetary and fiscal policy also play an important role in determining the competitive position of U.S. industry. Tax policies also influence rates of saving, investment, and capital formation, with potentially significant effects on overall employment growth and its composition. Rural areas have a major stake in macro policies that promote rapid rates of real economic growth. Such policies are likely to reduce economic stress accompanying structural adjustment in rural areas.

Sectoral Policy - Sectoral policy regulates the performance of individual industries or focuses on redressing industrial decline. It includes tax, regulatory, and direct investment programs targeted to specific industries. These programs are seen as a strategy to restore America's competitive position. Because current rural stress results primarily from adjustments in agriculture, mining and energy, and manufacturing, sector-specific economic policies are an option to consider. At the same time, such policies have the potential to become primarily protectionist, thus inhibiting needed adaptation and change in rural economies.

Territorial Policy - National rural development policy has usually focused on strategies to ameliorate differentials in levels of economic activity, growth, and rates of return between rural and urban areas. Federal programs specifically aimed at rural economic development have devoted the majority of their funds to public infrastructure, attempting to increase local comparative advantage and encourage local job creation. Current widespread rural stress results from a complex set of economy-wide and international factors, which may significantly reduce the efficiency and feasibility of such place-specific policy.

Human Resource Policy - Rural educational attainment continues to be lower than urban, with the South exhibiting particularly serious rural educational disadvantage. Human resource problems have impacts on both rural and urban labor market performance, because many of our rural youth will spend their working lives in urban areas. Industrial and occupational restructuring now occurring in the rural economy are displacing many rural workers, putting a premium on their learning new or expanded job skills. Human resource policies to prepare people to enter the labor force, to equip them for occupational changes, and to enhance their opportunities to be reemployed if they are displaced, are central to successful amelioration of rural economic stress.

Policy Choices

Our analysis of rural conditions and the economic forces at work leads to several observations about alternatives for future rural policy that may better inform the policy choices that are made.

- The economic adjustments now creating stress in rural areas present a dilemma for territorial strategies. Promoting growth where people currently live and in occupations or industries in which they now work is the least disruptive to existing community and family structures, and is the most politically attractive. But current rural economic adjustments appear to result largely from real competitive disadvantages, not failures of information or capital markets, or from generally inadequate rural infrastructure. Thus, rural policy that provides public subsidies for development in-place often traps resources in inefficient businesses or locations. The overall regional and national economy is better served by policy that facilitates a smooth and rapid movement of capital and labor from weaker to stronger industries, and from less competitive to more competitive locations.

- Policies that provide protection to industries that can be modernized and become more competitive have many advocates. There are, however, serious questions about how to identify specific industries or firms to assist, and it is difficult to end programs of protection once they are begun. Longrun prosperity for rural areas cannot be achieved by subsidizing certain sectors or firms to protect them from a highly competitive world economy. Such subsidies are costly. They stifle creativity and new enterprise development. They may not even stem near-term job losses because their success often depends on adoption of labor-saving technologies. Ultimately, they only postpone inevitable structural adjustments.

- The future course of farm employment is almost certainly one of decline. There is no near-term prospect of employment recovery in mining and energy industries, and future job gains in rural manufacturing seem unlikely to provide the impetus for rural growth that they did in the 1960's and early 1970's. Thus, rural economic development policy too closely tied to revival of these sectors is unlikely to succeed. In particular the declining significance of agriculture as an employer of rural workers and as a source of rural income has made farm policy ineffective as a strategy to improve general rural well-being. The interests of the agriculture sector and the territorial needs of rural areas would be better served by separate policies that have distinct objectives.

- Externalities, i.e., mismatches between who benefits and who pays for certain activities, are often used as an economic rationale for public policy intervention. For national rural development policy, the strongest case for the existence of externalities can be made for education and training programs. Many rural communities undergoing structural change will be unable to capture the benefits of higher spending on improved basic education or occupational and skill training and retraining, because graduates of these programs will often leave the community to find better labor market and entrepreneurial opportunities. States may face a similar problem in capturing the benefits of human resource investments. Thus, Federal programs to improve the human capital endowments of rural youth and the rural workforce (including workers dislocated in the current industrial restructuring) are the only way to overcome chronic underinvestment in rural human resources. They also have a major impact on overall economic performance of the Nation, not just on successful rural development.

- Diversity among rural communities makes the task of designing a national rural development policy more difficult. Some rural areas may need assistance, others do not, and the kind of assistance likely to be needed varies from State-to-State, and community-to-community. This situation enhances the role of States in developing and delivering rural programs. States may be able to promote collaboration among nearby rural communities, helping each one to identify a specialized role to play as a "neighborhood" in their rural region. Regional rural approaches might make possible some economies of greater scale, and the attractiveness of larger and more varied labor markets, thus enhancing the range of feasible development options.

- Rural communities and rural people must shoulder the major responsibility for identifying opportunities for local economic development and mobilizing resources to deal with structural change. Local efforts will not assure the growth of every rural community, and collectively they will fall short of generating enough rural jobs for all our current rural residents. Still, to stem the outflow of rural incomes to urban areas, and overseas, rural consumers can sometimes be offered more goods and services produced locally. New business startups show considerable potential to improve the performance of many rural economies and generate new job opportunities. Rural businesses can overcome cost disadvantages due to remote location by producing specialized goods and services that fill market niches. Public policy that facilitates new rural enterprise creation, by reducing information and transactions costs for private providers of venture capital, can assist in assuring the availability of financing for rural development. The availability of other services to local entrepreneurs, e.g., management, accounting, and marketing services, can also enhance the success rate of small business startups.

- National and international markets set overall constraints, but the success of individual local rural economies still depends importantly on the entrepreneurial decisions of individual firms. The community environment in which these decisions are made is important. Many rural communities lack the organized institutional and leadership base that could enable them to identify and pursue local economic development opportunities aggressively. Public policy that builds the capacity of local institutions to realistically assess their comparative economic advantage, identify competitive opportunities, and marshall the public and private resources to exploit these opportunities can make a difference to the future development of rural communities.

- There are numerous physical infrastructure problems in rural areas that are real constraints to future growth, but probably not the infrastructure problems that were the major targets of past Federal economic development programs. Those targeted programs looked most often toward the growth of goods-producing industry as the way to achieve economic development, and that does not appear to be a likely scenario for most rural communities in the next several years. A more important constraint to future rural job creation is likely to be the inadequacy of rural information and communications infrastructure to support service sector growth.

- Many of the site-specific infrastructure investments that rural communities want to undertake (e.g. industrial site development) have very limited spatial effects and require modest levels of funding. Given other competing national priorities, a lack of evidence of a shortage of funds for such projects, and political consensus on shifting the responsibility to State and local governments in our Federal system, there is little reason for a major Federal role in funding these projects. Most of the projects' benefits will be captured locally and users might well be charged fees to recover most of the costs.

Ultimately, the choice of national rural development policy is political, a balancing of the interests of groups whose future opportunities are being affected by widespread stress and structural change in the rural economy. Given the diversity of rural conditions and interests, much of the responsibility for devising program strategies to deal with rural stress will fall to State governments, and successful implementation of programs will depend on the leadership of rural communities. There are, however, significant externalities resulting from rural structural change that provide the economic rationale for a Federal role. That role includes creating a macro environment conducive to economic growth, facilitating multi-state or multi-community approaches to solving rural problems, and assuring adequate levels of investment in rural human resources. The Federal Government also has a comparative advantage in providing information and conducting analyses of broad national and rural economic change that help to shape policy.

Some will argue for a broader Federal role based on their perceptions of inequity resulting from the rural stress of structural change. There are human costs associated with geographic and occupational mobility, just as there are economic (and budget) costs associated with policies to slow the process of change. Historically, the performance of the U.S. economy has been enhanced by its ability to adapt to changing technologies and marketplace conditions. There appears to be little disagreement that future adaptation will be required, and that overall, public policy should be designed to facilitate that process. There is, however, considerable debate about the rate at which structural change should proceed, and the role of public policy in easing the adjustment burden for displaced people and impacted communities.

CHAPTER 1

RURAL CHANGE AND THE RURAL ECONOMIC POLICY AGENDA FOR THE 1980'S

David L. Brown and Kenneth L. Deavers

Abstract. Rural America has different problems and opportunities in the 1980's than in previous decades. These differences are relevant to public policy concerning rural economic development. The primary rural issue has moved from revitalization in the 1970's to economic dislocation and stress in the 1980's. The economic, social, and demographic diversity among rural areas indicates that programs tailored to particular types of rural economies may be more effective than more generalized programs.

The rural economic policy agenda changes over time in response to changing economic, social and demographic conditions.1/ Thirty years ago, agriculture dominated the social and economic well-being of most of the rural population. In 1950, 23 million Americans, 15 percent of the Nation's population, lived on farms. In rural areas, 4 of every 10 persons lived on a farm, and almost a third of the Nation's nonmetropolitan work force was engaged directly in agriculture (1, 24).2/ Hence technological and organizational changes in agriculture, and public policy relating to agriculture, were dominant forces shaping rural life both on the farm and in rural communities.

Rural America in the 1950's was characterized by economic disadvantage and widespread poverty, although, as Michael Harrington observed in The Other America, rural poverty was often concealed by a facade of pastoral beauty (11). As a consequence, the major engagements in the War on Poverty were fought in the cities. Rural poverty was relatively neglected (4). This neglect was formally addressed in 1967 by President Johnson with the creation of a National Advisory Commission on Rural Poverty. The Commission's final report, The People Left Behind concluded that, "rural poverty is so acute as to be a national disgrace."

With this background in mind, this first chapter identifies what is different in rural America in the 1980's compared with the 1970's, and suggests implications of these new trends for rural economic policy. Measures of the socioeconomic conditions of rural areas are important in assessing the need for continued public programs to assist rural areas, while information on rural-urban differences helps justify separate (or separately administered) rural and urban policies (6). The diversity of conditions among rural areas themselves provides a rationale for multi-dimensional policies that target assistance to areas of greatest need and/or opportunity.

David Brown is Associate Director and Kenneth Deavers is Director, Agriculture and Rural Economy Division, ERS.

1/ The terms and rural and nonmetropolitan (nonmetro) are used interchangeably in this paper, except when citing data.

2/ Underscored numbers in parentheses refer to sources listed in the references section at the end of the chapter.

New Forces Shaping U.S. Rural Policy

Regardless of one's perspective, whether it be economic, social, or demographic, present day rural America bears little resemblance to the 1950's. Population size, growth, and composition; the industrial and occupational structure of the rural economy; the general level of living and socioeconomic well-being; and perhaps most important of all the linkages binding nonmetro and metro economies and communities together have all changed significantly.

Socioeconomic conditions in rural America have generally improved compared with three decades ago, and rural-urban differences, while still present and important, have diminished greatly. Rural America, once an adjunct to the mainstream of American life, is now closely integrated with national events. However, given this general appraisal, rural economic conditions have worsened significantly since 1980.

If rural revitalization was the theme of the 1970's, economic stress is the overriding nonmetro issue of the 1980's. This stress is associated with both cyclical trends, such as a slow recovery from the 1979-82 recession, and with basic changes in the structure of the nonmetro economy including very slow growth in manufacturing employment because of greater import competition and enhanced labor productivity due to technological change. These cyclical and structural changes affect, and are affected by, the human resource base of rural economies. Moreover, all of these trends and changes are taking place within the context of changes in the Federal system of government, and these organizational changes affect governments' response to the changed social and economic context.

Cyclical Trends

Prior to the 1970's, the nonmetro unemployment rate was lower than the metro rate--remaining below the metro rate throughout recession and recovery. The most recent recession represents a significant break with that pattern. The nonmetro unemployment rate rose more rapidly than the metro rate, peaked at a higher level, and has remained above the metro rate throughout the 1980's (table 1--see tables at end of chapter). Employment in timber industries fell as new housing starts declined. Many rural manufacturing plants were linked to the struggling auto and steel industries. And mining and other energy extractive industries once again suffered a severe contraction. The textile, clothing and leather goods industries, which are concentrated in nonmetro areas, also suffered from enhanced import competition during this period. In addition, nonmetro areas were more heavily affected by involuntarily shortened work weeks, and a higher percentage of nonmetro workers became discouraged from looking for work than was true of metro workers. Both of these factors contribute to a greater underestimation of the unemployment rate in nonmetro than in metro areas, as shown by the adjusted rates in table 1.

Rural areas have recovered from the recession more slowly than metro areas. In fact, the data in table 1 show that the nonmetro unemployment rate actually increased between 1984 and 1985 while the metro rate declined. As of 1985, the official nonmetro unemployment rate remained 1.5 percentage points above the metro rate and the difference in adjusted rates was 3 percentage points. Most of this difference is explained by the poor performance of the nonmetro manufacturing sector which lost 450,000 jobs in the recession and regained only about 20,000 jobs between 1982 and 1983 during the beginning of the recovery. Improved performance of this sector seems to be the key to future development for many individual areas. However, the issue may be more complex--requiring either a transition to a post-industrial, service-producing economy, or success in capturing a different mix of manufacturing activities than fueled the rural growth of that sector in the 1960's and 1970's.

The unemployment rate seriously underestimates the extent of economic hardship in local labor markets, urban or rural. There is widespread agreement that accurate documentation of local labor market performance requires measures of underemployment. Clogg and others have developed a labor utilization framework (LUF) to account for underemployment (5), and Lichter has used this framework to evaluate relative economic hardship between metropolitan and nonmetropolitan areas (14). Lichter demonstrated that in 1982, 25 percent of nonmetro workers age 18-64 were underemployed compared with an unemployment rate of about 10 percent. Metropolitan areas had a similar unemployment rate (9.5 percent), but only 21 percent underemployment.3/ Thus, the unemployment rate captured about 40 percent of employment-related hardship in nonmetro areas compared with about 45 percent of the hardship in metro areas. Nonmetro workers were considerably more likely than metro workers to be at jobs that provided marginal earnings or to be working part-time when they preferred full-time work. Nonmetro workers were slightly more likely to be discouraged from looking for work.

Structural Changes In The Rural Economy

Industrial Transformation of the Rural Economy 4/

The industrial transformation of U.S. (and rural) employment has included a shift from predominatly agricultural to predominatly nonagricultural employment followed by a change in the mix of nonagricultural jobs from goods production to much greater emphasis on services. Bogue identified 1880 as the crossover point for the first major transformation (3). In that census year, nonagricultural workers first outnumbered agricultural workers. The second transformation began in the 1960's when manufacturing's share of nonagricultural employment first dropped below a third and the share accounted for by services (including government) began to rise.

This transformation continues today. During the 1960's and 1970's nonmetro areas competed successfully with metro areas in attracting or creating new job opportunities in manufacturing. In fact, the share of all U.S. wage and salary manufacturing employment in nonmetro areas rose from 19 percent in 1969 to 22

3/ The LUF includes five additional elements: discouraged workers, underemployed workers conventionally defined, involuntarily part-time workers, workers unemployed by low income, and workers whose jobs do not match their preparation.

4/ David McGranahan's comments regarding the occupational aspects of industrial change are acknowledged.

percent in 1984 (22). Roughly 40 percent of nonmetro citizens live in counties primarily dependent on manufacturing for employment (2). This dependency represents a significant structural transformation of rural America. In the rural South particularly, the growth of manufacturing jobs helped many rural households rise from poverty. At the same time, the growing rural manufacturing base has had a disproportionate representation of low-wage, labor-intensive industry. Again, the South is a case in point because apparel, textile, wood products, leather goods, shoes, and a few other low-wage industries accounted for 40 percent of total nonmetro manufacturing employment in 1983, compared with only 19 percent for the United States as a whole.

The U.S. goods-producing sector has experienced significant job losses as part of the current structural realignment. In many areas, U.S. wage gains appear to have substantially outstripped productivity gains, leaving the country vulnerable to foreign competition. Nonmetro areas, because of the types of products manufactured there, appear to be bearing a disproportionate share of the shorter term structural adjustments in manufacturing. And competitive problems have been aggravated by the high value of the dollar. Although the dollar has declined against the Japanese Yen and some European currencies, it remains high against the currencies of several nations that recently became direct competitors with nonmetro manufacturers. Moreover, the introduction of productivity-enhancing technology has exacerbated the situation by further limiting employment growth in goods-producing industries.

Rural specialization in production activities has limited employment opportunities for rural workers in the first half of the 1980's. Metro employment grew more than three times as fast (10 percent) as nonmetro employment (3 percent) during 1970-85. Slow employment growth has meant that nonmetro areas had more difficulty absorbing new entrants to the work force, and many manufacturing and mining workers who lost their jobs were not able to find alternative employment. Within goods-producing industrial sectors, nonmetro workers are more likely to have blue collar jobs and less likely to have white collar jobs than metro workers. It is precisely these blue collar jobs that are being lost in the American economy. Between 1979 and 1985, white collar manufacturing employment rose 10 percent and blue collar manufacturing declined 15 percent which resulted in an overall job loss in manufacturing of 6 percent.

In addition to the adjustment problems already discussed, the rural economy is sharing fundamental industrial restructuring with the rest of America. Service industries now employ many more rural workers than goods-producing industries, and most of the job growth in rural areas since the late 1960's has been in the service sector. The trend appears to have accelerated since 1969. Of all new nonfarm wage and salary jobs created in rural areas, 83 percent have been in the service sector. Since 1979 more jobs have been created in services than have been lost in manufacturing and resource-based industries (22) (table 2). The Bureau of Labor Statistics has projected that 90 percent of the 16 million new jobs expected in the United States between 1984 and 1995 will be in the service producing sector (17). Business, personal, and medical services are expected to account for over half of the new jobs. The business services sector is expected to add the largest number of new jobs because of the increasing trend among firms toward contracting out some services and because of the growth in demand for computer software and other modern business services.

Because many service sector jobs are often low-wage jobs, some observers have suggested that this will lead to a "bipolarization" of the work force--that is, the disappearance of many high-paid industrial jobs and their replacement by low-paid service jobs will lead to a decline in the industrially supported middle-income class. Available evidence does not support that prediction, principally because jobs in high-wage manufacturing have been lost much more slowly than in low-wage manufacturing. Thus, many of the newly created service jobs are at wage levels equal to or above those being lost in the goods-producing sector. This leads to a net improvement in the income prospects for many workers.

For nonmetro areas, industrial restructuring poses some serious challenges. First, rural manufacturing employment is heavily concentrated in low-wage industries and, within these industries, in blue collar occupations. Thus, rapid job losses in low-wage manufacturing are likely to have a disproportionately negative effect on nonmetro areas. Second, rural areas do not appear to be attracting a large share of the "high tech winners" among new service jobs. And third, particular industrial activities are concentrated by region. For example, nonmetro manufacturing is heavily concentrated in the South and East (fig. 1--see figures at end of chapter). This means that a geographically concentrated group of nonmetro areas may experience structural employment problems at the same time. This situation is similar to the current regional concentration of financial stress in the farm sector.

Farm Financial Stress--on the Farm and Past the Farm Gate

In the mid-1980's no discussion of rural economic issues would be credible that did not recognize the serious financial stress being experienced by a significant component of U.S. agriculture. Economic Research Service (ERS) data for December 1985 showed some 10-12 percent of U.S. farm operators, who owed 37 percent of farm operator debt, to be in serious financial difficulty as measured by a debt/asset ratio greater than 0.4 and negative net cash flow (table 3)(23). Many of these farmers are commercial scale operators who are unlikely to be able to restructure their businesses successfully, and thus will be forced from farming. Given the geographical concentration of these farms, many rural communities in the Northern Great Plains and Western Corn Belt regions are already experiencing farm-related development problems.

Research on farm-dependent counties, which identifies about 700 nonmetro counties that depend on farming for at least 20 percent of total labor and proprietors' income, indicates how difficult the adjustment problems may be for many rural communities (fig. 2) (2). Table 4 shows farm-dependent areas to be relatively small in population, sparsely settled, remote from urban opportunities, and with little other local economic activity. Because many of these counties are clustered together, farmers forced to leave farming may have to move (or commute) considerable distances to find alternative employment.

Of course, the current adjustment follows nearly 30 years of continuous farm consolidation and population loss for many of the affected areas. The problem is not new, but it represents a dramatic departure from what happened in the 1970's (13). Farmers who leave farming for economic reasons in the 80's have different characteristics than those who left in the past. They tend to be young, relatively well educated, and they operated commercial-scale farms. Past displacements were concentrated among tenant farmers (many of whom were black, poorly educated, and who generally had little or no managerial responsibilities for their farms), and smaller scale commercial operators.

Another aspect of current farm stress is that the causes are primarily outside of agriculture, and difficult to address with traditional farm policy instruments. High real interest rates, an overvalued dollar, and the current period of disinflation following immediately on the heels of a period of rapid inflation are all important contributors to farm financial stress. These factors are simply indications of how dependent the overall health of U.S. agriculture is on macro- and international economic forces.

The implications of financial stress for farm-related households and communities are not as well understood as implications for the overall performance of the farm sector. However, recent research indicates that farm financial stress has far-reaching effects throughout farm-dependent communities. In a study conducted for the U.S. Senate Committee on Governmental Affairs, Stinson documented that lower farm prices and reduced land values have resulted in reduced local government revenues (20). As a consequence, some farming areas face reductions in essential public services. Other research has shown that farm financial stress is associated with the recent surge in rural and agricultural bank failures. Although most failed banks eventually reopen under new management, bank failures can hurt local credit availability throughout the community (10).

Human Resources Issues

Changing Dimensions of Rural Poverty

A disproportionate share of the Nation's poor have resided in rural areas throughout this century. The lastest data available from the Census Bureau, the Current Population Survey, and other sources all indicate that this situation persists today. In 1985, the nonmetro poverty rate was 18.3 percent compared with a 12.7 percent metro rate (fig. 3). Even when in-kind transfers are included with other income, 13.2 percent of nonmetro people failed to have enough income to meet minimal basic needs--the official definition of poverty. In metro areas the comparable figure was 9.3 percent.5/ While poverty rates declined during the mid-1970's, both metro and nonmetro rates have risen since the 1979-82 recession and were substantially higher in 1985 than a decade before (7).

Not only is poverty more prevalent in nonmetro areas, but the characteristics of the nonmetro poor also differ from those of poor persons in metro areas. The nonmetro poor are more likely to be elderly, white, and to live in the

---

5/ These figures are for 1983, the latest date for which data on in-kind transfers are available.

South than is true of the metro poor. Labor force attachment is much higher in poor nonmetro families. Over two-thirds of the nonmetro poor families had at least one worker in 1985, and over one-fourth had at least two workers. In metro areas only 58 percent of poor families had even one worker.

The composition of poverty has changed during the last decade. Some of these compositional changes serve to further differentiate the nonmetro and metro poor, but most changes have affected metro and nonmetro areas alike (table 5). Changes in the age and family composition, and regional location of poverty are especially notable (18). Since 1973, the poverty rate among older persons has declined from 16 to 14 percent, while the rate for youths increased from 14 to 22 percent. This reversal was experienced in both metro and nonmetro areas; in nonmetro areas poverty among older persons fell from 23 percent to 18 percent, and the rate for youths rose from 17 to 24 percent. The improved income position of older persons is due to the initiation of the Supplemental Security Income program which established a nationally uniform minimum benefit level for needy elderly, disabled, and blind people and the indexing of Social Security for inflation beginning in 1974.

The overall economic improvement of elderly persons masks important differences among subgroups of the aged population. The elderly as a group have gained in average income because new cohorts entering the older age groups are more affluent than their predecessors. The cash income of the older elderly, in contrast, has declined. The oldest of the elderly population (those 80 and over) are disproportionately located in nonmetro areas, and the nonmetro elderly have only three-fourth the income of metro elderly. So the income position of the rural elderly continues to be an important issue.

The diminished economic position of children is related to changes in household and family structure, and especially the increase in families maintained by women with no spouse present. The greatest share of the Nation's poor (45 percent) live in married couple families, but over a third live in female-headed single-parent units. The poverty rate among these households is substantially higher than for other family types. This is true in both metro and nonmetro areas, but more pronounced in nonmetro areas where the poverty rate is 43 percent for female-maintained families compared with 13 percent for other family households. Furthermore, 58 percent of nonmetro children living in female-headed families are poor compared with 18 percent of children living in other family types. The child poverty rate has increased for all residence and family types since 1973.

Rural poverty continues to be concentrated in the South, but the proportion of the nonmetro poor living in this region has declined from 60 percent in 1973 to about 50 percent in 1985 (7). This regional shift results from improved conditions in the rural South and from a deterioration of economic conditions in other regions. During the past decade there have been major economic downturns in agriculture, energy, and mining industries (a disproportionate number of which are located in the Northwest and Midwest), and in rural manufacturing which has been subjected to increased international competition. Rural manufacturing, as indicated in figure 1, is primarily located in the South and Midwest (2).

Reduced Nonmetro Population Growth and Migration

The relative rates of metro and nonmetro population growth and net migration reversed from their traditional pattern of increasing urbanization to favor nonmetro areas during the 1970's. The "population growth turnaround" was one of the most surprising and significant demographic events of the decade. For the decade as a whole, the nonmetro population grew by 13.5 per 1,000 per year compared with 10.1 per 1,000 per year for metro areas (table 6). The pervasiveness of the turnaround can be judged by the fact that the rate of nonmetro population growth increased in all four census regions, and the nonmetro rate exceeded that of metro areas in all regions but the South. Moreover, nonmetro growth increased in areas separated from direct metropolitan contact as well as in counties adjacent to metro areas. And smaller areas grew more rapidly than larger areas, indicating decentralization among rural areas themselves. Research conducted during the 1970's clearly indicated that both economic and noneconomic factors were responsible for the nonmetro population revival (8). An increasingly diversified and revitalized nonmetro economy, community modernization, and deeply held preferences for rural living all figured in the migration reversal.

Nonmetropolitan growth began to slow by the end of the 1970's (19). Post-1980 county population estimates indicate that nonmetro areas are now growing at a lower rate than metro areas. The data indicate that the nonmetro annual growth rate declined from 13.5 per 1,000 during the 1970's to 7.4 per 1,000 in 1980-85. In contrast, the metro rate rose slightly from a little over 10 per 1,000 in the 1970's to 11.5 per 1,000 during 1980-85. Although nonmetro growth slackened during the late 1970's and early 1980's there was no net outmigration until 1982-83. However, current data show a nonmetro net migration loss to metropolitan areas of about 632,000 persons between 1985 and 1986 (table 7). Accordingly, reduced nonmetro growth of the 1980's may signal a return to the generalized decline of previous decades. Almost half of all nonmetro counties (1,160) lost population during 1983-85, compared with 460 that lost population in the 1970's. During the 1960's, 1,300 lost population. Nonmetro population decline is still concentrated in the Plains and Western Corn Belt, but has also spread to the Lower Great Lakes and to parts of the South (Appalachia, Delta, Texas Plains) during 1980-85 (fig. 4). However, the rates of decline experienced by these areas are significantly less than in the 1960's. Thus, the most recent nonmetro losses are equivalent to the average annual losses in the 1950's, higher than those of the 1960's, and a significant departure from the growth of the 1970's.

The return to slower nonmetro growth poses important questions about future rural economic progress and community viability. A coherent empirical explanation of the diminished growth, one that investigates the effects of both economic and noneconomic factors, has yet to be developed. Reduced growth is surely associated with the economic problems discussed above -- delayed recovery from the 1979-82 recession, financial stress in agriculture and its linked industries, the slow growth or decline of rural manufacturing and natural resource-based industries, and possibly a diminished appeal of rural areas as residential locations. A better understanding of the relative importance of these and other factors would contribute to more informed public policy.

Changes in Population Composition

Decisionmakers are increasingly recognizing that information on demographic composition in addition to that on population size and change is essential for carrying out their responsibilities and planning for the future. Age composition, household structure, and educational attainment have particular relevance to rural economic development.

Age Composition:

The median age of the U.S. population is projected to be 32 years in 1987, a decade older than in 1880. This increase was brought about by a diminished proportion of children and an increasing proportion of elderly persons. Youths and infants accounted for 44 percent of the Nation's population in 1880, and elderly persons only accounted for about 3 percent. By 1987, the infant and youth population had declined to less than 30 percent, and over 1 in 10 Americans is age 65 and older.

Rural areas have traditionally had a higher proportion of children, relatively fewer younger adults and middle aged persons, and a larger proportion of the elderly. These residential differences have been accounted for by a higher level of fertility in rural areas, outmigration of young adults, and both inmigration of older persons and aging-in-place. These residential differences still persist, although both urban and rural areas have been similarly affected by major demographic events of the last quarter century. The decline in the population proportion under 15 years of age is pronounced in both metro and nonmetro areas (fig. 5), and is associated with the current prolonged period of low fertility.

Nonetheless, the nonmetro population in 1980 still had a larger proportion of infants and children than the metro population. In constrast, because of aging-in-place and net inmigration of elderly persons from metro counties, the nonmetro population appears to have aged more than the metro. The working age population grew somewhat more rapidly in metro areas because the baby boom was more dramatic there and because metro areas are still gaining young labor force age migrants from the nonmetro population.

Projections prepared by the Census Bureau indicate that the Nation's population will age substantially and there is every reason to expect this to take place in both urban and rural areas. In 2030, the proportion under age 65 will have virtually stopped growing while the number of persons 65 and older will increase sharply beginning in 2010. This is because of movement through the age structure of the large cohorts born between 1946 and 1964. The aging of the baby boom generation will push the median age to about 41 years in 2030 (compared with 32 in 1987). In that year, 21 percent of the population will be age 65 and above and 3 percent will be 85 or older. Relatively small changes in the sizes of younger age groups combined with substantial increases in the elderly population will yield equal numbers of the very young and old (21). These changes will have broad implications for the need of and demand for goods, services, and economic opportunities, and they will affect patterns of consumption, life style, and social and political behavior.

Household Composition:

Changes in household structure are critically important at the local community level. For example, since the family is the institutional unit in which childbearing is expected and condoned, a reduction in married couple households has important implications for childbearing (and age structure) and for goods and services (principally education) associated with children. An increased prevalence of single-parent, mostly female-maintained households with children implies that the need for public assistance to such householders and their children may be growing in an area. Day care, income maintenance, and special educational programs may be increasingly necessary.

Data from the U.S. Census of Population demonstrate that rural areas continue to be characterized by more traditional family-type living arrangements (9). Rural areas continue to have a higher proportion of married couple households with minor children, a smaller proportion of single-parent families, and a much lower proportion of persons living alone. On the other hand, both rural and urban areas experienced similar changes in family living arrangements of households during the 1970's. And since some of the principal factors associated with rural-urban differences in family structure have moderated (fertility, age at marriage, conservative attitudes toward family and the role of women) residential differences in family structure may moderate as well. For the present, however, rural households continue to have a more traditional structure.

Educational attainment:

In discussions about rural economic development, nearly everyone has concluded that a high-quality work force is a critical asset. New entries to the work force must be properly prepared, current workers must maintain their skills and employability, and displaced workers must be provided with skills to facilitate their transition to new jobs. Educational attainment has increased substantially in both metro and nonmetro areas during recent years (fig. 6). The metro median increased from 11.1 to 12.6 years of schooling between 1960 and 1980, and the nonmetro median increased from 9.3 to 12.3 years of schooling.

However, the seeming convergence in these medians masks differences in attainment between the residence categories. Continuing and even growing residential differences in formal educational attainment are apparent when one focuses on completion of high school and college rather than on median years completed. The proportion of the population age 25 and over that completed high school has risen substantially since 1960 in both metro and nonmetro areas, but the residence gap in this level of educational attainment has persisted at about 10 percentage points. The percentage of the population age 25 and over that completed college also increased in both metro and nonmetro areas since 1960, but the residence gap in college completion has actually increased. The proportion of the adult nonmetro population that has completed college in 1980 is about the same as the metro percentage a decade before: about 1 in 10 persons. The persistence of the difference is partly attributable to nonmetro net outmigration of young adults with college degrees (even during the 1970's turnaround era). These residential differences are even more marked for racial minorities.

Job upgrading and lifetime learning are new concepts for the economy, and they are not easily measured in conventional data sets. Accordingly, we do not know the extent to which workers continuously upgrade their skills to maintain employability in the rapidly changing economy. Many firms view upgrading as an externality, that is a cost or benefit that must be borne by society at large rather than the individual firm (12). Accordingly, without some kind of government subsidy most firms will probably not provide adequate training for their workers to maintain their occupational levels during periods of rapid technological or organizational change. This is a critical issue for displaced workers and for those who maintain employment, but who are at risk of downward occupational and income mobility.

Changes in the Federal System of Government

During the 1960's and 1970's State and Federal involvement in the affairs of local government grew. One measure of that growing involvement was the declining share of locally raised revenues as a share of total local spending. By 1977, intergovernmental transfers represented 43 percent of revenues of rural localities compared with 34 percent in 1962 (22). Many communities, while welcoming the inflow of Federal funds, chafed at the regulations that often accompanied grant-in-aid money, and decried the distortion of local priorities that resulted. The concerns of local government began to be recognized with the adoption of Federal Revenue Sharing and other block grant programs that significantly lessened Federal control of the use of funds. Simultaneously, there was a Federal move toward deregulation which aimed at letting the marketplace decide on resource allocation, prices, and services in transportation, finance, and communication.

We are now witnessing the reduction or withdrawal of Federal funding for many grant-in-aid programs, block grant programs, and even General Revenue Sharing. In part, this is a philisophical retrenchment by the Federal Government in the scope of its activities, but it is also a result of a perceived need to reduce Federal deficits while maintaining both a strong defense and most of the major individual entitlement programs that provide security for our citizens. This is a challenging environment for State and local governments which, in the face of taxpayer resistance, may not be able to replace Federal funds with locally raised revenue. It is uncertain what effect this situation will have on local services, on the distribution of current costs and benefits among users and the broader community, or intergenerational transfers of wealth and income.

The range of Federal actions affecting rural areas, and the policy latitude of State and local governments, have changed substantially. No longer is it appropriate to focus principally on levels and constraints of intergovernmental assistance such as grants-in-aid or revenue sharing. The increased integration of the rural and urban economies and the importance of international trade have increased the stake of rural areas in macroeconomic and trade policies. For example, the 1979 change in Federal Reserve policy coupled with the financial deregulation of the early 1980's produced strong inflation and increased the trade value of the dollar, and real interest rates; all of which contributed to the current financial stress in agriculture.

But the stake of rural areas in broad macro-level policies may be even more important outside of agriculture. Many more of our rural citizens depend for their livelihood on employment in manufacturing and services than on employment in agriculture. In fact, considerable progress in relieving poverty among rural people, especially in the South, has been the result of rural industrialization that provided better incomes than those in agriculture, and created opportunities for paid employment for large numbers of rural women. It now appears that many jobs in low-wage rural manufacturing are vulnerable to structural change and foreign competition. Compared with the Federal Government, States and localities are severely limited in the policy responses they can make to deal with industrial restructuring and trade. And what they often do is neither cost beneficial to them, nor in the best interests of the national economy.

General Directions for Rural Economic Policy

This chapter has delineated major changes in the rural economic, social, and demographic situation in the 1980's. These shifts have dramatically altered the context for rural policy. If rural growth, symbolized by the nonmetro population and employment turnaround, was the theme of the 1970's, structural change and economic dislocation are the overriding nonmetro issues of the 1980's. Rural economic stress is primarily associated with a restructuring of the nonmetro economy, and an increased integration of the nonmetro economy with metro and global economies. Because nonmetro areas are closely tied to national and international economic forces, changes in macroeconomic policies, enhanced international competition and other global forces have major significance for the overall health of rural economies and especially for agriculture, manufacturing, and mining, which together constitute almost 40 percent of rural employment. Accordingly, the rural stake in national economic policy must be considered.

Rural America is extremely diverse, and broad generalizations mask many important differences among individual areas. In fact, in many ways the variation among rural areas is often as great as the differences between them and urban areas. Accordingly because local rural economies differ widely, programs tailored to particular types of rural economies may be more effective than more generalized programs. In recognition of the diverse economic structure of rural America the Economic Research Service has identified main types of rural economic bases to aid in policy analysis (2).

The diversity of recent economic and demographic experience in several of these types of areas is presented in table 8. The data in this table show that nonmetro counties with economies heavily dependent on goods production (agriculture, mining, manufacturing) have fared much more poorly than other nonmetro areas (or metro areas) since 1979. Only manufacturing-dependent counties had any employment growth at all, and their growth was much lower than in nonmetro areas as a whole. Both mining- and agricultural- dependent counties lost jobs. Similarly, all three goods-producing county types gained population at rates less than the nonmetro average, and high unemployment was extremely prevalent in mining and manufacturing counties. Unemployment was not high in agricultural counties, but this was partially because high rates of self employment in these counties negatively bias officially measured unemployment statistics. Economic dislocation and stress in nonmetro America is concentrated in areas that depend heavily on goods production for employment. Nonmetro areas without clear economic dependence on these types of activities, and especially those with retirement-recreation bases, are experiencing much less economic stress in the 1980's.

The diversity of rural conditions and economic structures, and the restructuring of rural economies that is now occurring requires that rural economic policy in the 1980's distinguish between industrial and spatial concerns. Traditional "industrial policies" for rural America have focused on agriculture. Such an industry-specific focus is clearly out of line with rural economic realities of the 1980's. Even farm financial problems are now difficult to address with traditional farm policy instruments alone. The health of the farm sector depends importantly on the Nation's monetary and fiscal policy. And since agriculture is only a component (albeit an important one in many instances) of the local rural economy and labor market, an exclusive policy focus on agriculture provides little direct assistance to most rural workers and communities.

Even as policymakers recognize the rural stake in national policy, the concentration of adjustment problems in particular geographic areas suggests the need for State, local, and regional development strategies. It is important to remember that many rural problems are regionwide and not just community-specific. Agriculture, as a major source of household income, is concentrated in the Northern Great Plains and Western Corn Belt; rural manufacturing is disproportionately located in the Midwest and Southeast. Mining and other extractive activities are conducted west of the Mississippi River and in Appalachia. All of these industries have experienced either very slow growth or significant job losses in the 1980's. "Beggar thy neighbor" programs of smokestack (or silicon chip) chasing will not lead to net job growth in a region or an effective replacement of lost jobs. Regional or multi-community cooperative efforts would appear to have a better chance of success in responding to industrywide declines. Cooperation among different levels of government and with private industry is also essential. The overall goal might be for regions to diversify their economic activities, to increase their participation in the more service-oriented sectors of the economy, thereby decreasing their vulnerabilty to shifts in demand.

Some local economies may be unable to adapt to the transformation from goods production, mining, or agriculture to greater dependence on services, and may decline permanently. Their functions in the rural economy of the future may become largely residential. Access to urban or other rural employment centers may be their only key to economic prosperity.

Two major dimensions of rural economic policy--human resource development and job generation (for new and displaced workers)--must be closely coordinated. Evidence suggests that the skills possessed by many displaced industrial workers, miners, and farmers are likely to be inappropriate for the new, largely service-based and information-dependent industries that will dominate the rural economy of the future. A mismatch between skills and opportunities will affect a large portion of the rural labor force. Development strategies need to consider the skills workers possess or are gaining, and the job requirements of existing and developing industries. It makes little sense to train people for jobs that do not exist in the local or regional economy, unless the goal is to enhance employability elsewhere and encourage commuting or residential mobility. On the other hand, creating new jobs in an area when indigeneous workers do not possess the required skills to fill them, does not directly benefit local workers unless training programs are envisioned. The likely result, without such efforts, is for the new jobs to be filled by workers from outside the local community. This is not necessarily bad since the purchasing power in trade and services of new workers may indirectly create employment opportunties for longer term residents. But the first round of mostly higher paying jobs will probably go the newcomers (16).

Human resource development activities must be sensitive to the different needs of new generations entering the work force for the first time, the needs of current workers who desire to maintain employability and a modest standard of living, and dislocated workers making a transition to new jobs.

The diversity of rural economic conditions indicates diverse paths to economic viability. Some areas will consolidate their economic development efforts around current activities; others will seek to transform and diversify their economies from goods-producing to a broader representation of services; others will specialize in residential and consumer service activities. Some areas will be successful in maintaining or expanding their levels of economic activity. Others will experience decline. Recognizing that rural areas are increasingly interrelated with each other and with the Nation as a whole, go-it-alone, community-specific economic development efforts appear to be increasingly inappropriate in tomorrow's rural America.

To be relevant to current concerns, public policy must recognize that rural America has different problems and opportunities in the 1980's than in previous decades. This changing economic context is not the only factor affecting the policy agenda, but it must be considered a major one.

References

1. Beale, Calvin L. "People on the Land," chapter 3 in Thomas R. Ford (ed) Rural USA: Persistence and Change, Ames: Iowa State University Press, 1978.

2. Bender, Lloyd D., Bernal L. Green, Thomas F. Hady, John A. Kuehn, Marlys K. Nelson, Len B. Perkinson, and Peggy J. Ross. The Diverse Social and Economic Structure of Nonmetropolitan America, RDRR-4. United States Department of Agriculture-Economic Research Service. Sept. 1985.

3. Bogue, Donald. The Population of the United States: Historical Trends and Future Projections, New York: The Free Press, 1985.

4. Chadwick, Bruce A., and Howard Bahr. "Rural Poverty," chapter 11 in Thomas R. Ford (ed.) Rural USA: Persistence and Change, Ames: Iowa State University Press, 1978.

5. Clogg, Clifford. Measuring Underemployment. New York: Academic Press, 1979.

6. Deavers, Kenneth L., and David L. Brown. "A New Agenda for Rural Policy in the 1980's," Rural Development Perspectives, vol. 1, no. 1, Oct. 1984, pp. 38-41.

7. ________________, Robert A. Hoppe, and Peggy A. Ross. "The Rural Poor: Policy Issues for the 1980's," in Stuart Nagel (ed.) Rural Poverty Policies, Garden City: Greenwood Press, forthcoming 1988.

8. Fuguitt, Glenn V. "The Nonmetropolitan Population Turnaround," Annual Review of Sociology, vol. 11, pp. 259-280, 1985.

9. _____________, David L. Brown, and Calvin L. Beale. The Population of Rural and Small Town America. New York: Russell Sage, forthcoming, 1988.

10. Gajewski, Gregory. "Agricultural Lending, Regulator Behavior, and Bank Closures in 1986: A Two State Logit Model" presented to Eastern Economic Association, Washington, DC.

11. Harrington, Michael. The Other America: Poverty in the United States, Baltimore: Penguin, 1962.

12. Kuttner, Robert. "The U.S. Can't Compete Without a Top-Notch Workforce," Business Week (February 16, 1987), p. 20.

13. Lee, John E. 1986. Farm Sector Financial Problems: Another Perspective," AIB-499, Washington, DC: United States Department of Agriculture-Economic Research Service, May 1986.

14. Lichter, Daniel T. "Measuring Underemployment in Rural Areas," Rural Development Perspectives, vol. 3, no. 2 (Feb. 1987) pp. 11-14.

2

15. Lerman, Donald L. "Substandard Housing," *Rural Development Perspectives* vol. 2, no. 3 (June 1986), pp. 40-41.

16. Oliveira, Victor J., and John A. Kuehn. *Distribution of Employment Growth in Ten Ozark Counties*," RDRR 66, Washington, DC: United States Department of Agriculture-Economic Research Service, May 1987.

17. Personick, Valerie A. "A Second Look at Industry Output and Employment Trends through 1995." *Monthly Labor Review* (Nov. 1985) pp. 26-41.

18. Preston, Samuel H. "Children and the Elderly: Divergent Paths for America's Dependents," *Demography*, vol. 21, no. 4 (1984), pp. 435-458.

19. Richter, Kerry. "Nonmetropolitan Growth in the Late 1970's: The End of the Turnaround?" *Demography*, vol. 22, no. 2 (1985), pp. 245-263.

20. Stinson, Thomas. "Governing the Heartland: Can Rural Communities Survive the Farm Crisis?" Washington, DC. U.S. Senate Committee on Governmental Affairs, 99th Congress, 2nd Session, 1986.

21. U. S. Bureau of Census, "Projections of the Population of the United States by Age, Sex and Race: 1983-2080" *Current Population Reports* P-25, No. 952. Washington, DC: U.S. Department of Commerce, 1984.

22. U.S. Department of Commerce, U.S. Bureau of the Census. Census of Governments--Local Government in Metropolitan Areas 1962 and 1977. vol. 5. Washington, DC. 1965 and 1980.

23. U.S. Bureau of Economic Analysis. Unpublished data, Washington, DC. U.S. Department of Commerce, 1985.

24. U.S. Department of Agriculture, Economic Research Service. *Financial Characteristics of U. S. Farms, January 1, 1986*," AIB-50. Aug. 1986.

25. Zuiches, James J., and David L. Brown. "The Changing Character of the Nonmetropolitan Population 1950-1975," chapter 4 in Thomas Ford (ed.) *Rural USA: Persistence and Change*, Ames: Iowa State University Press, 1978.

Table 1--Nonmetro and metro unemployment rates 1973-85

(annual average unemployment rate percent)

Year	Nonmetro		Metro 2/	
	Reported	Adjusted 1/	Reported	Adjusted 1/
	Percent			
1985	8.4	13.0	6.9	9.9
1984	8.1	12.2	7.3	10.4
1983	10.1	14.9	9.4	13.1
1982	10.1	14.9	9.5	13.1
1981	7.9	11.5	7.5	10.3
1980	7.3	10.7	7.0	9.5
1979	5.7	8.5	5.8	8.0
1978	5.8	8.8	6.1	8.4
1977	6.6	9.8	7.3	9.3
1976	7.0	10.2	8.0	10.6
1975	8.0	11.6	8.7	11.5
1974	5.1	7.9	5.8	7.9
1973	4.4	7.1	5.1	7.1

1/ Unemployment rate adjusted to include discouraged workers and half of the workers employed part-time for economic reasons.
2/ Metro area delineation was updated in 1985 and is not directly comparable with earlier years in data series.

Source: Bureau of Census, Current Population Survey.

Table 2--Industrial composition of nonfarm wage and salary employment by metro - nonmetro residence, 1969-84

Industry	Metro			Nonmetro		
	1969	1977	1984	1969	1977	1984
			Percent			
Agriculture Forestry, Fisheries	–	1	1	1	1	2
Mining	–	1	1	2	3	3
Construction	5	5	5	5	6	6
Manufacturing	25	20	17	24	22	20
Transportation and Public Utilities	6	5	5	5	5	5
Trade	21	22	22	20	21	21
Finance, real estate, insurance	6	7	8	3	4	5
Services	19	22	26	18	19	21
Federal Government	7	6	5	7	5	4
State and local government	11	12	11	15	15	14

– = less than 1 pct.

Source: (22).

Table 3—All farms, farms with cash shortfalls, and proportions of debt by debt/asset ratios; January 1, 1986

Category	Debt/asset ratio	All farms with potential financial stress		Farms with cash shortfalls in actual financial stress	
		Farms1/	Proportion of farm operator debt	Farms	Proportion of farm operator debt
		Number	Percent	Number	Percent
Technically insolvent farms	Over 100%	61,000 (3.9%)	16.1	40,000 (2.6%)	11.2
Very highly leveraged farms	70-100%	72,000 (4.6%)	17.4	37,000 (2.4%)	9.7
Highly leveraged farms	40-70%	198,000 (12.8%)	32.9	96,000 (6.2%)	16.3
Low leverage farms	Under 40%	1,22,000 (78.7%)	33.7	519,000 (33.5%)	13.2
Total[1]	N/A	1,551,000 (100.0%)	100.0	629,000 (4.46%)	50.4

N/A = Not applicable.

1/ The Farm Cost and Returns Survey excludes 250,000 farms that do not have actual sales of $1,000 in the survey year, and undercounts by approximately 300,000 farms places that sold less than $20,000 of products.

||||.

Table 4--Farming-dependent counties: Selected characteristics 1/

Item	Unit	Farming counties	All nonmetro counties2/
Counties, 1975-79	Number	702	2,443
Rural and not adjacent to an SMSA	Percent3/	46.0	24.9
Population change, 1970-80	Percent4/	4.8	14.6
Per capita income, 1979	Dollars4/	7,264	6,980
Farm income, 1979	Percent5/	31.9	14.6
Services-producing income, 1979	Percent5/	27.0	28.9
Mean population in 1980	Number	12.0	26.0

1/ Counties with a weighted annual average farm income of 20 percent or more of weighted annual total labor and proprietor income in 1975-79.
2/ Independent cities are combined with adjacent counties.
3/ Percentage of counties in group.
4/ Unweighted county averages.
5/ Percentage of total labor and proprietor income, unweighted county averages.

Table 5—Selected characteristics of the poor by metro- nonmetro residence, 1973-83 1/

Item	U.S.		Metro		Nonmetro	
	1973	1983	1973	1983	1973	1983
			Percent			
Poverty rate for:						
Total population	11.1	15.2	9.7	13.8	14.0	18.3
Children in households with female householders, no spouse present	52.1	55.4	51.8	54.5	52.9	58.0
Blacks	31.4	35.7	28.2	33.4	41.1	43.3
Aged	16.3	14.1	12.7	12.1	22.5	17.8
Farmers	13.4	23.7	NA	NA	NA	NA
Percentage of poor who are:						
Children in households with female householders, no spouse present	22.5	19.0	27.7	22.1	14.8	14.8
Whites	65.9	68.0	61.4	63.3	72.6	75.5
Blacks	32.2	28.0	36.3	32.3	25.9	21.2
Aged	14.6	10.5	12.1	9.3	18.4	12.4
Farmers	5.6	3.7	NA	NA	NA	NA
Householders working full time	18.3	16.9	15.5	12.9	22.2	23.3
Percentage of poor families with:						
No workers	38.1	40.5	42.4	46.1	32.1	31.8
Two or more workers	20.0	20.7	15.7	15.4	26.1	28.9

N/A = Not applicable.

1/ Metropolitan areas as defined in 1970.

Source: Current Population Survey.

Table 6--Metropolitan and nonmetropolitan annualized population change 1960-85.

Area	1960-70	1970-80	1980-85
	Population growth per 1,000 per year		
United States	12.7	10.9	10.5
Metro 1/	16.1	10.1	11.5
Nonmetro	2.5	13.5	7.4

1/ Metro Areas as defined in 1970.

Source: Beale and Fuguitt, 1985; 1985, data U.S. Bureau of Census, unpublished.

Table 7—Metro- Nonmetro migration in the United States, 1980-86

Migration stream	1980-81	1981-82	1982-83	1983-84	1985-86
Metro-to-nonmetro	2,350	2,366	2,066	2,258	1,807
Nonmetro-to-metro	2,156	2,217	2,088	2,609	2,439
Net to nonmetro	194	149	-22	-351	-632

Note: For 1980-83, metropolitan areas are as defined in 1970; 1984 metropolitan definition used thereafter (noninstitutionalized population).

Source: Current Population Survey Bureau of the Census
Prepared by Economic Research Service, USDA

Table 8—Recent economic and demographic experience in different types of nonmetropolitan counties

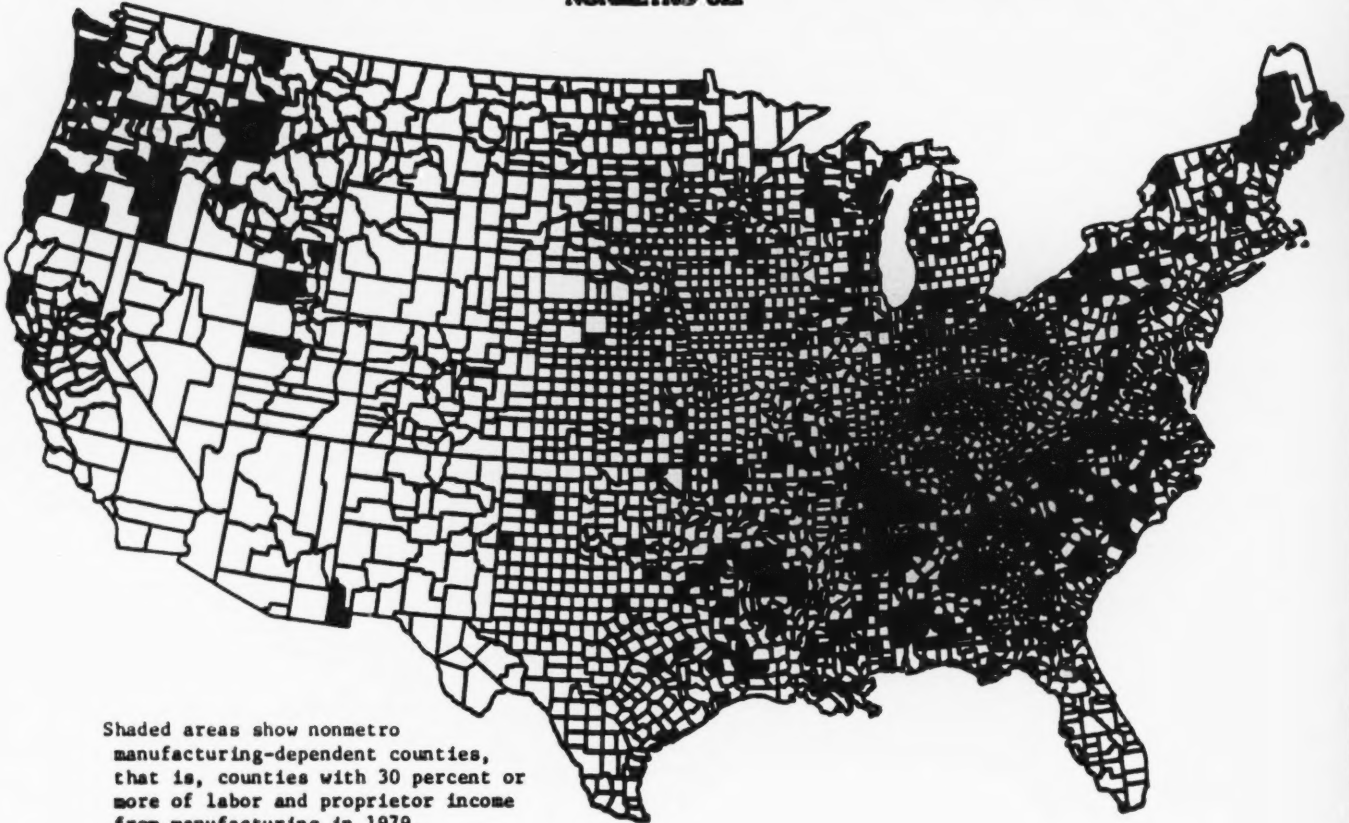
			Nonmetropolitan			
	Unit	Metropolitan	Agriculturally Dependent	Mining Dependent	Manufacturing Dependent	Total
Employment change 1979-85	Percent	10.0	-0.3	-6.5	1.0	3.0
Unemployment rate in 1985 greater than 9 Percent 1/	Number	154/654	202/702	119/200	377/678	1,063/2,443
Population change 1980-85	Percent	5.9	2.7	3.3	2.2	3.8

1/ In relation to total number of counties in category.
For definition of county types see Bender et al., 1985.

Figure 1.

MANUFACTURING-DEPENDENT COUNTIES

NONMETRO U.S.

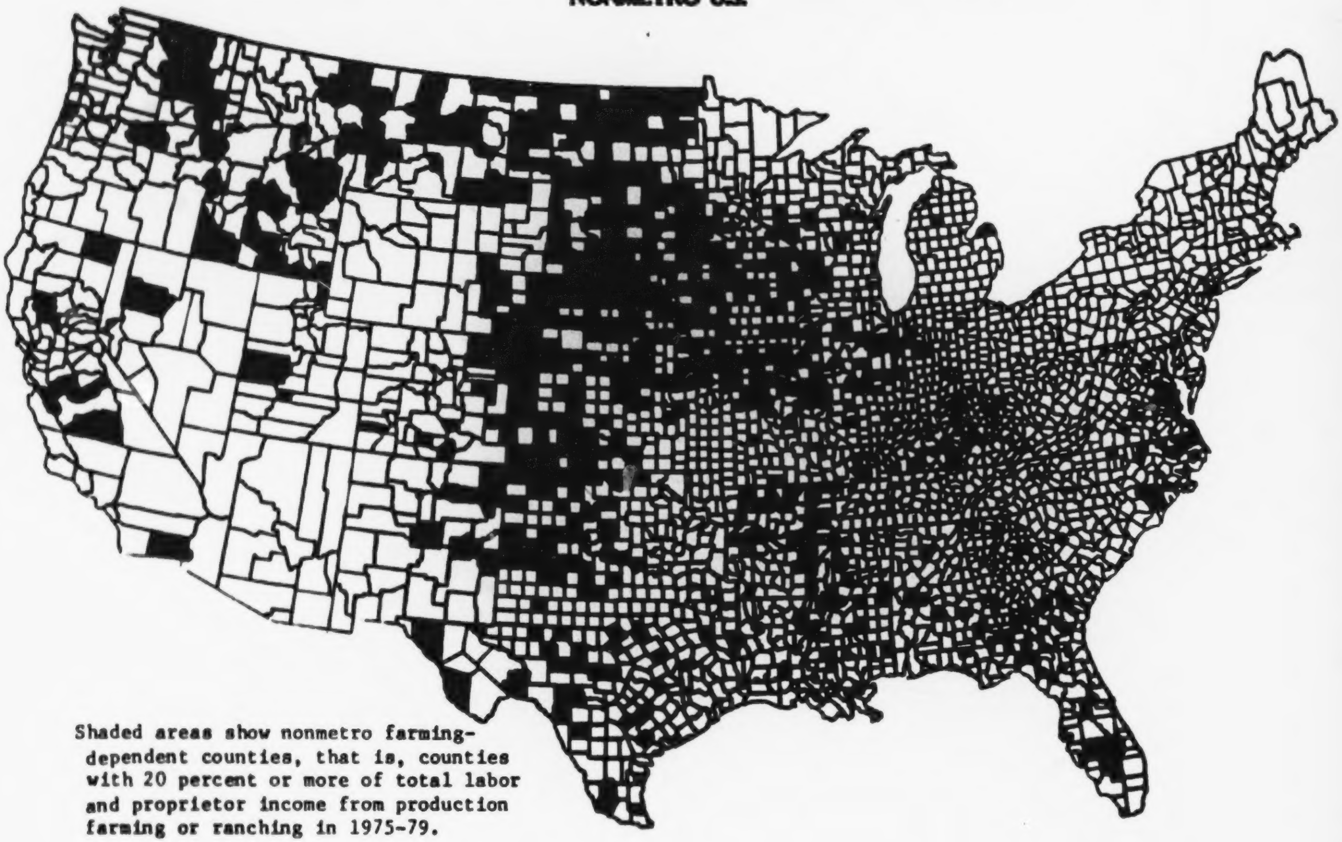


Shaded areas show nonmetro manufacturing-dependent counties, that is, counties with 30 percent or more of labor and proprietor income from manufacturing in 1979.

Figure 2.

AGRICULTURE-DEPENDENT COUNTIES

NONMETRO U.S.

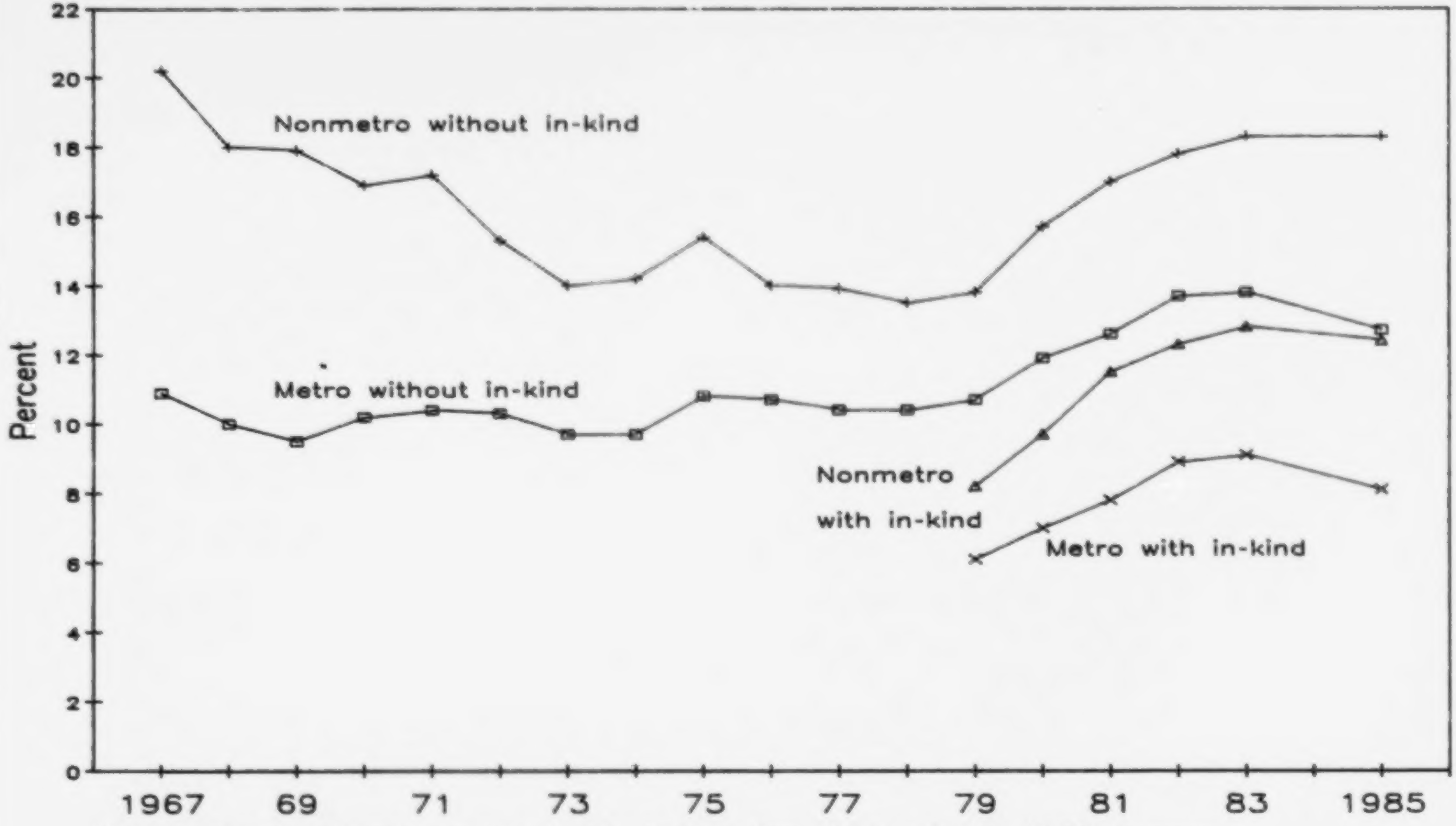


Shaded areas show nonmetro farming-dependent counties, that is, counties with 20 percent or more of total labor and proprietor income from production farming or ranching in 1975-79.

Figure 3

Poverty rates, 1967-85

(with and without in-kind benefits)

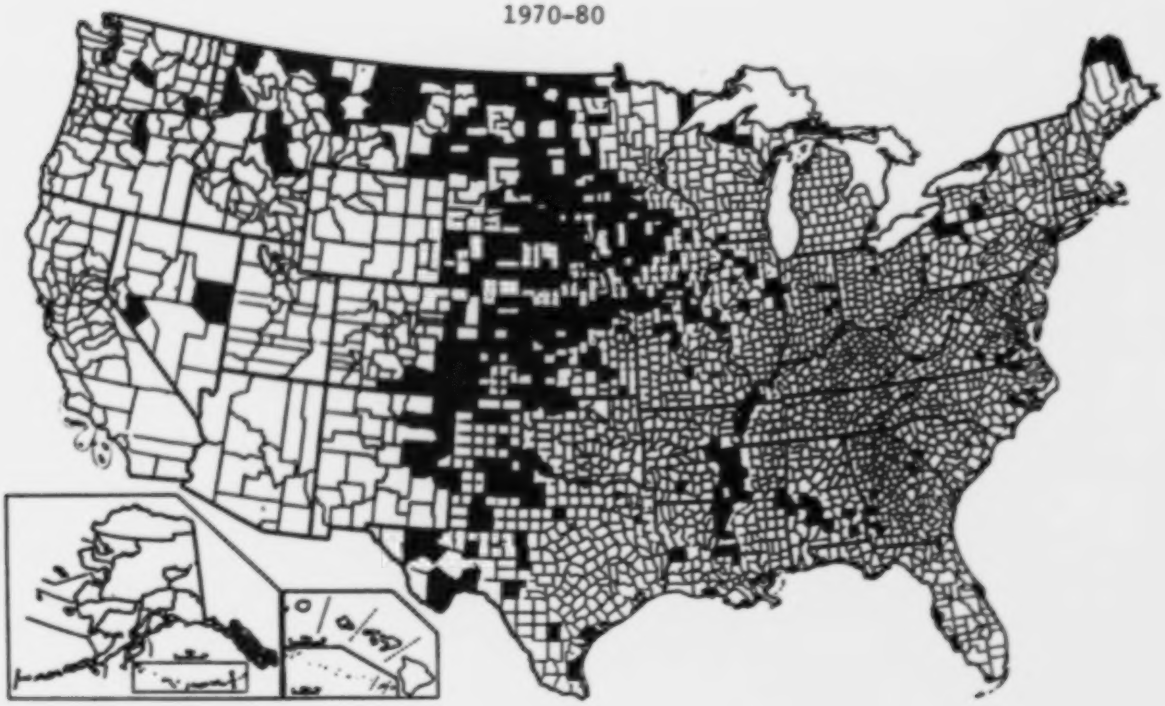


Metro-nonmetro based on the 1980 Census for 1985, on the 1970 Census for 1969 and 1971-83, and on the 1960 Census for earlier years. No 1984 data.

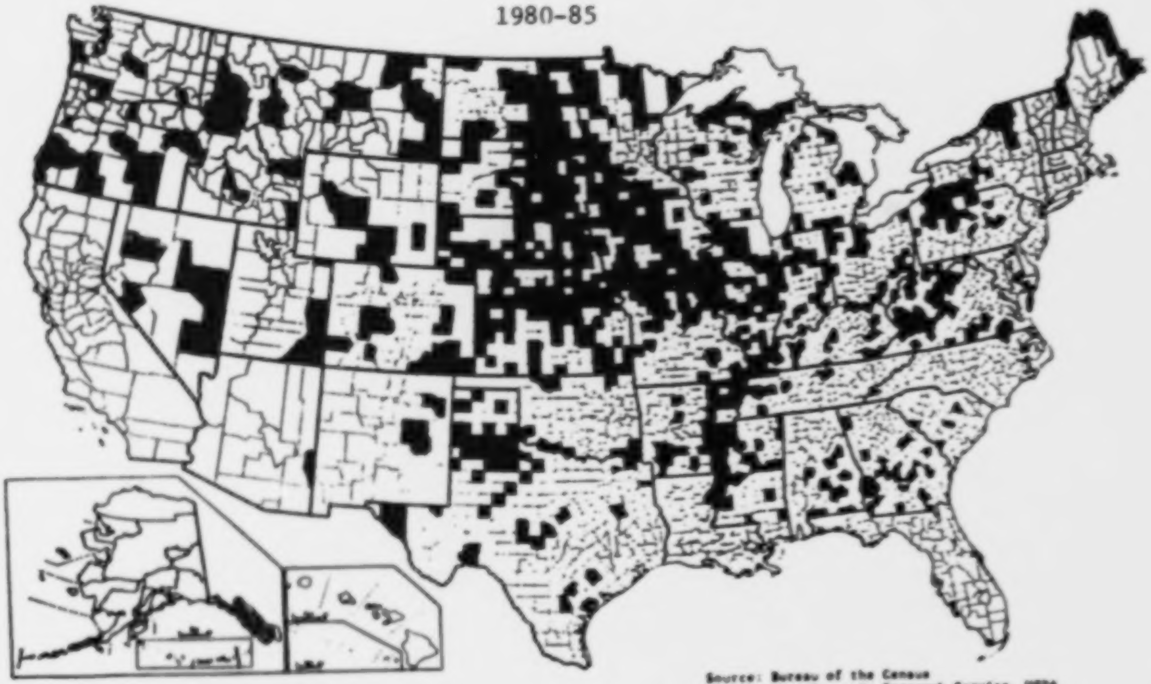
Source: U.S. Census Bureau.

Figure 4. Nonmetro counties with declining population 1970-80 and 1980-85

1970-80



1980-85



Source: Bureau of the Census
Prepared by: Economic Research Service, USDA

Figure 5A. Age distribution of the metropolitan and nonmetropolitan populations, 1980

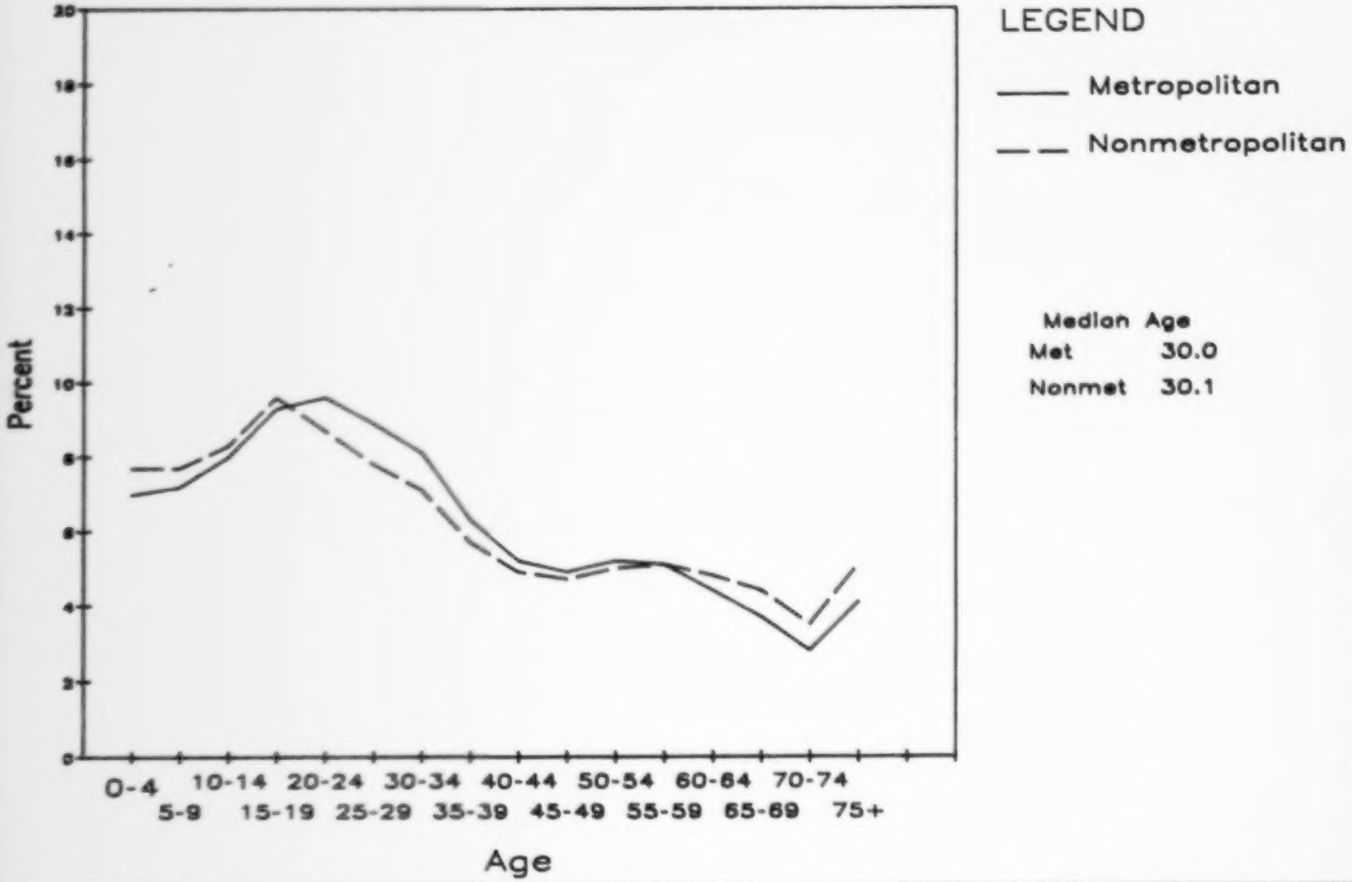
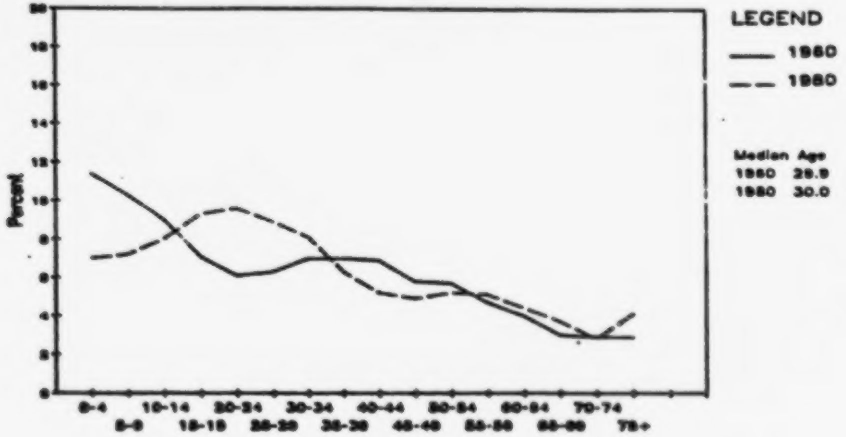
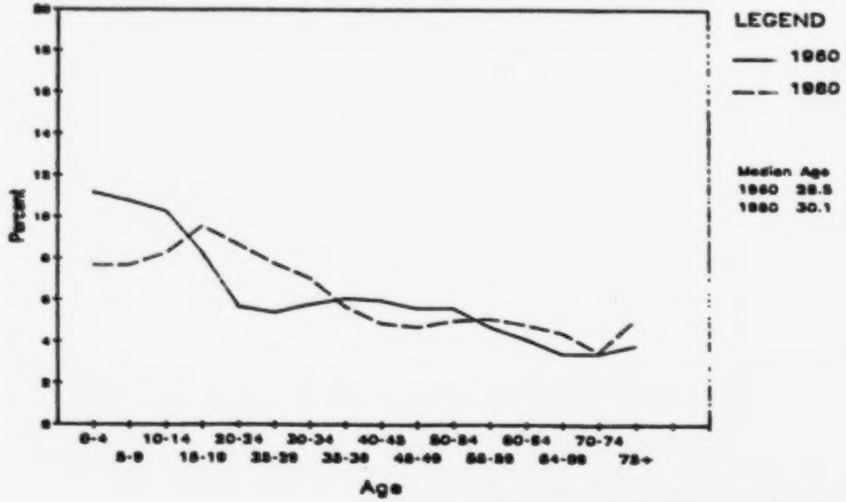


Figure 5B. Age distribution of metropolitan and nonmetropolitan populations, 1960-80

Metropolitan



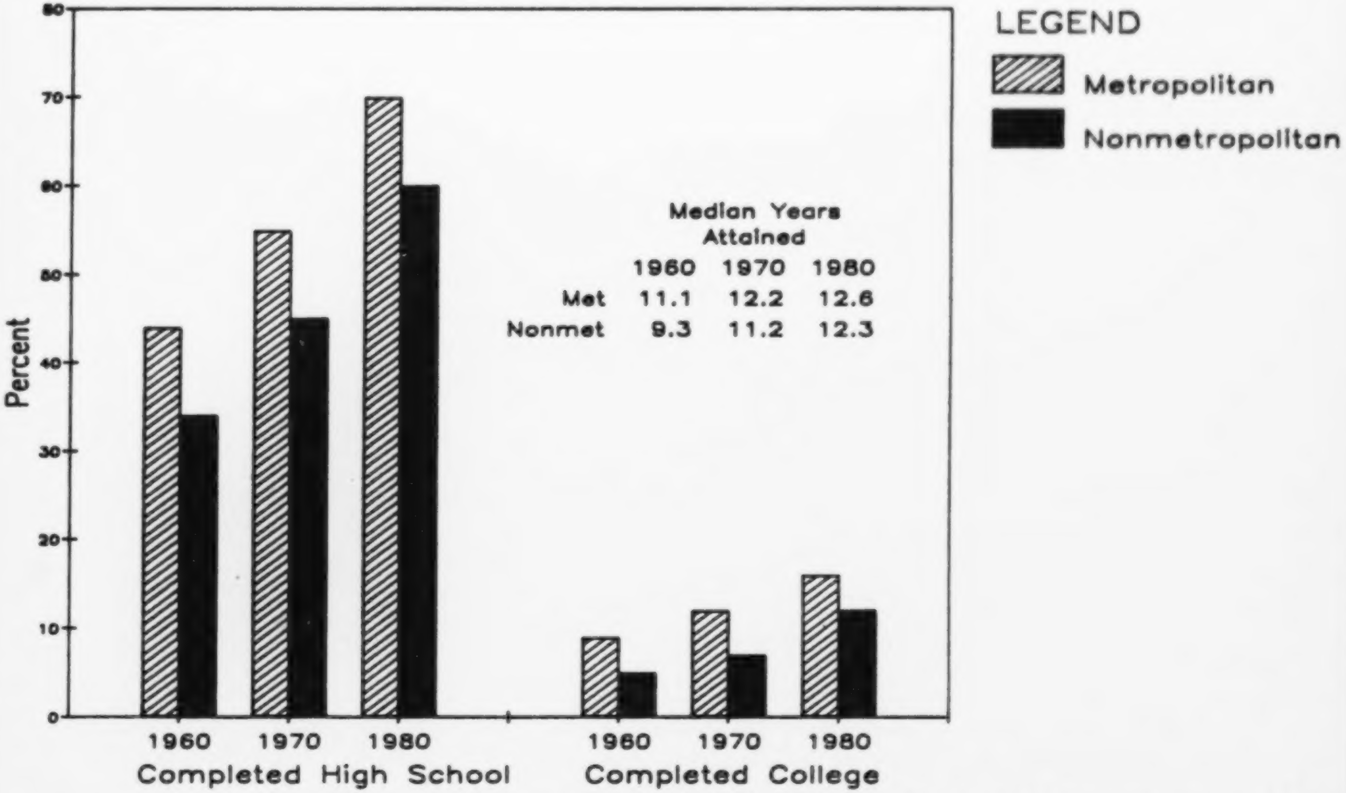
Nonmetropolitan



Metropolitan as of 1980 Census Definition

Figure 6. Educational attainment by metropolitan residence, 1960-80

(Population 25 and above)



Median Years Attained

	1960	1970	1980
Met	11.1	12.2	12.6
Nonmet	9.3	11.2	12.3

Source: U.S. Census of Population, tabulated in McGranahan, et al., 1986.

CHAPTER 2

THE ROLE OF RURAL WORKERS IN THE NATIONAL ECONOMY

David A. McGranahan

Abstract. Rural workers are predominantly in production industries. Rural areas have high proportions of agricultural, mining, and manufacturing jobs, and low proportions of service sector jobs. Rural manufacturing industries have more operator jobs and fewer professional-technical and managerial jobs. Within industries, blue collar jobs are more likely to be rural than white collar jobs. Specialization in production makes rural workers more vulnerable than urban workers to business cycles, foreign competition, and technological change. The vulnerability is compounded by the relative isolation of many rural communities. While rural specialization in production can be expected to continue, it should be possible to improve the ability of rural areas to attract higher skill jobs.

The declining importance of the traditional economic activities in rural areas and the growth in manufacturing and services during the 1970's suggested to many observers an increasing integration of the rural and urban economies and a convergence in their fates. Hawley and Mazie, editors of a major book on rural areas speculated that, "in the end one might expect a disappearance of the distinction between nonmetro and metro sectors" (3).1/

The rural economic experience of the 1980's has made clear that, in spite of the smaller roles of agriculture, mining, and forestry in the nonmetro economy, important rural-urban differences remain. Rural employment growth has not kept pace with urban growth and rural unemployment rates have remained relatively high since the recession of the early 1980's. One part of the explanation is that while agriculture, mining, and forestry do not dominate the rural economy as a whole, they are a critical part of the economic base in certain rural areas. The poor economic performance of these sectors in recent years has weakened local economies, and led to slower-than-average service sector growth in these areas (4). These sector and area-specific problems are reflected in overall rural statistics (see Brown and Deavers above).

Another part of the explanation, however, lies in the overall role of rural workers in the national economy. While rural economies have considerable manufacturing and services activity, the particular industries that tend to locate in rural areas are quite different from those with a more urban orientation. Moreover, industries themselves are organized in such a way that the types of jobs available to rural workers are quite different from those

---

David McGranahan is a sociologist with the Agriculture and Rural Economy Division, ERS.

1/ Underscored numbers in parentheses refer to sources listed in the References section at the end of the articles.

available to urban workers. These differences in industry and job mixes are due less to local resource bases than to rural settlement patterns and, possibly, education levels. This chapter analyzes the limitations that rural population sparsity and remoteness place on the types of jobs available to rural residents. It also investigates the role of education levels in limiting rural job opportunities.

Community Size Limits the Rural Economy

Rural settlement patterns and rural job skills developed originally around natural resources exploitation, agriculture, forestry, and mining, and the delivery of services to the families and businesses involved in these activities. While some processing was done in rural areas, the rural-urban division of labor was essentially one of rural resource-based production and urban manufacturing and trade. Rural productivity gains and reduced demand for mining output caused not only an exodus of rural youths to urban jobs but also made rural areas attractive to urban firms. The shift of nonresource-based activities out of cities has created a new rural-urban division of labor, one based on size of place and urban proximity, as well as resource location.

According to central place theory, which links community size to economic role, small towns, cities, and metropolises are organized in hierarchies based on size (1, 5, 7). Information flows among larger places, down the hierarchy from larger to smaller places, and out to nearby areas. Small towns and rural areas are generally the last to get new information. Not only do most innovations occur in urban settings, but even when the innovations are rural, information about them tends to flow first to urban places and then to other rural areas. Larger places are service centers for the smaller places in their surrounding areas. With a larger volume of information and trade flows, larger communities have more specialized services and occupations, and larger organizations with economies of scale. At the same time, however, land and labor costs are higher in urban areas than in smaller, more remote settings, and there are costs to urban congestion as well. For households, the rural advantages are lower housing costs and greater access to rural amenities.

These rural-urban differences suggest that, other things being equal, industries and firms dealing with volatile or unestablished markets, rapid technological change, or other conditions requiring innovative responses will favor metropolitan locations, where they have ready access to information, specialized skills, and professional expertise. Industries and firms operating in relatively stable conditions, with routine production technology and established markets, have less need of face-to-face relationships with information sources and experts and are more suited to smaller towns in remote areas.

While the volatility of conditions facing an industry will influence its location, location may also influence industry response to its conditions. With the exception of branch plants, establishments and industries in small towns in remote areas generally have less access to new information, new technology, and outside expertise. This suggests that rural industries will tend to be less innovative and less able to adapt to new conditions than urban industries. An explicit recognition of this tendency is the U.S. agricultural extension system, which attempts to overcome isolation and give farmers access to information, specialists, and new technologies.

Rural-urban distinctions are relevant for workers and households as well as businesses. Even if the lower cost of living compensates for lower pay, smaller, more distant locations likely have an economic disadvantage especially for more highly skilled and professional workers. Job advancement often requires movement from one firm or organization to another. Urban areas likely have a number of employers in any given industry, so people can shift jobs without shifting residence. This is much less true in rural areas. Thus, for instance, urban school administrators can move from school to school within their city as they advance; rural administrators must move from town to town. The problem of job mobility has increased as more and more households have two people with jobs and careers. A move from one town to another may mean advancement for one earner, but is likely to mean a loss for the other. These may be some of the reasons why, in a 1985 Gallup poll, 53 percent of the high school graduates indicated that they would prefer to live in a small town or open country area, but only 30 percent of the college graduates had that preference (11).

Managerial and professional-technical jobs are involved with the problems of uncertain markets, technological change, and information acquisition and most likely to be filled by people with high education. This suggests, first, that industries with high proportions of managerial and professional jobs are likely to be more urban than other industries and, second, that industries with branching or subcontracting are likely to be organized so that management and research activities are more urban than production activities. These issues of industry and job location are addressed in the remainder of the report.

Two data sets are used in the analysis. One is the March 1986 Current Population Survey (CPS), one of a monthly series that has been carried out for 35 years by the Bureau of the Census. The survey, which covered about 56,500 households, included information on occupation and industry, but geographic detail is limited to metro-nonmetro distinctions by region. The other source of data on industry is the Department of Commerce's Bureau of Economic Analysis (BEA) county data tapes. While these data have more geographic detail, the latest year available is 1984. Also, the county level data include nonfarm proprietors as a separate employment category. For each county, the nonfarm proprietors were allocated to individual industries using a formula that took into account the industry employment of the county's wage and salary workers and the ratio of proprietors to wage and salary workers in these industries at the national level. Unlike the CPS, the BEA data are based on information provided by employers and location refers to place of work rather than residence. People who have two jobs are counted twice.

The Rural-Urban Distribution of Industries and Jobs

Industries may be divided into four broad industry groups: resource industries, manufacturing, construction, and services. Each group represents a different set of locational contingencies. For resource industries (agriculture, forestry, fishing, and mining), access to resources is probably the major contingency; for manufacturing, access to labor, technological expertise, inputs, and markets vary in importance with the nature of the industry; construction is heavily dependent on local growth; and services are organized around access to markets.

Rural-urban location varies considerably by industry group (table 1--see tables at end of chapter). Resource industries are clearly the most rural group. While only 13 percent of total U.S. employment is in rural (under 20,000 urban residents) nonmetro counties, about 45 percent of resource industry employment is located in these counties. The major reason for the concentration of resource industries in more rural areas is that it requires much land per worker. Areas with extensive agriculture, forestry, or mining are necessarily sparsely settled. Also, the price of land is sufficiently high in more urban areas that resource industries are generally not viable.

Manufacturing is less rural than resource industries but more rural than either service industries or construction. About 23 percent of manufacturing employment is located in nonmetro areas, compared with less than 18 percent of service and construction jobs. Manufacturing tends, more than the others, to be located in counties adjacent to metropolitan areas. In part, this reflects the outward movement of many manufacturing industries away from major centers, a movement that began before the turn of the century as land and labor costs increased downtown and as rail and other developments reduced transportation costs (4). It also reflects the absorption of nonmetro services by nearby metro areas.

The services sector has the highest proportion of management and professional-technical jobs (30.9 percent) while the resource industries have a relatively low 11.5 percent (table 2). In general, rural areas specialize in production industries, while urban areas specialize in the services industries.

Resource Industries

Not only do resource industries have relatively few managerial and professional-technical jobs, but the few they do have tend to be located in metro areas. While around 60 percent of the production jobs in resource industries are based in nonmetro areas, fewer than 20 percent of the managerial jobs and less than 30 percent of the professional-technical jobs are in nonmetro areas (table 3). Administrative support and sales jobs also tend to be in metro rather than nonmetro areas, reflecting the location of management and markets. While agriculture and mining have slightly different proportions in metro and nonmetro areas, both industries show a strong tendency for managerial and professional-technical jobs to be metro while production jobs are nonmetro.

Manufacturing Industries

Manufacturing industries vary considerably in their proportions of managerial and professional-technical jobs, ranging from 39.9 percent in aircraft production to 8.2 percent in lumber (fig. 1--see figures at end of chapter). The industries tend to divide into two groups, one with high proportions (over 28 percent) of jobs in the managerial and professional-technical occupations and relatively few nonmetro employees, and the other with comparatively few (under 18 percent) managerial and professional-technical jobs but relatively large proportions of nonmetro employees. Even within these two groups, the tendency for industries with higher proportions of managerial and professional-technical jobs to favor metro locations is evident.

The two manufacturing groups differ in their production technologies as well. About 20 percent of the jobs in each group are precision production jobs, but while 52 percent of the low managerial and professional-technical group employees have routine production jobs (like operators, and fabricators), only 24 percent of the other industry group's employees have this type of job (not shown). The value added per worker hour was $32 in the low managerial and professional-technical group, but $56 in the high managerial and professional-technical group. For the sake of brevity, these two groups will be called routine manufacturing and complex manufacturing, respectively, in the remainder of this chapter.

Overall, 22 percent of manufacturing jobs are located in nonmetro areas. Since routine manufacturing industries are more rural than complex industries, nonmetro areas may be expected to have higher proportions of routine production jobs and somewhat lower proportions of managerial and professional-technical jobs. Expected nonmetro proportions of different job types were calculated on the basis of the metro-nonmetro location of the 23 manufacturing industries and the types of jobs in each industry. The actual proportions are consistent in direction with expectations but show a much stronger pattern (fig. 2). On the basis of industry mix alone, about 20 percent of the management jobs should be nonmetro. In fact, only 10 percent of these jobs are nonmetro. Only 8 percent of the professional-technical jobs are nonmetro, half the proportion expected. On the other hand, nonmetro areas have a much higher proportion of machine operator (29 percent) and other less-skilled blue collar (35 percent) jobs than expected. These proportions reflect both a tendency, among small firms, for those with more routine operations to locate in nonmetro areas and a tendency, among multilocational firms, to locate more routine production jobs in nonmetro areas and keep management and research operations in metro locations.

Service Industries

Service sector industries, which generally serve local markets, are not distributed between rural and urban areas according to the proportion of industry jobs that are managerial or professional-technical (fig. 3). There is a tendency, however, for industries such as education, health, and retailing, which provide services to households, to be more active in nonmetro areas than industries such as banking and business services, which have a substantial business clientele. (The classification as a consumer or producer industry is necessarily arbitrary for some industries.)

In general, the rural-urban distribution of jobs in the household or consumer service industries is about the same as the distribution of total civilian employment (table 4). Since this is roughly proportional to the number of households in rural and urban areas, there appears to be relatively little rural or urban bias in the distribution of household service industries (see Miller and Bluestone below).

On the other hand, service industries that have at least some producers as clients do tend to have an urban concentration, especially in large metro areas. These services provide financing, information, and technological knowledge to their clients, many of whom are manufacturing management and professional-technical personnel. Less than 8 percent of the employment in these industries is in rural counties, even though many of the industries in the producer category also serve households.

The rural-urban distribution of different types of jobs within the consumer industry group shows a relatively flat profile (fig. 4). Service and blue collar jobs have a greater tendency to be in nonmetro areas than do managerial and professional-technical jobs, but the differences are not great. Although universities are evident exceptions, consumer-oriented services and jobs appear to be located largely with reference to the location of households.

The rural-urban job profile for producer services resembles that of manufacturing, although the differences among job categories are not as great. All types of producer services jobs tend to be urban.

Construction

The rural-urban distribution of construction employment follows the same general pattern as the consumer services sector (Table 1). Managers, professional-technical, and sales and management support staff are more urban based than other workers, but the differences are small (Table 5). Construction firms, which with some major exceptions, operate in local markets, are between manufacturing and consumer services in their tendency to locate managerial jobs more than other jobs in urban areas.

The Rural Disadvantage

The more rural areas of the country tend to specialize in production industries, especially resource industries and the manufacturing industries with routine operations. Together, these two industry groups employ about a third of the work force in rural nonmetro counties, but less than 10 percent of the work force in large metro areas (Table 6). Within these industries, rural areas specialize in the more routine production jobs. The more urban areas of the country tend to specialize in business services and manufacturing with nonroutine operations. Within resource, manufacturing, and business services industries, urban areas specialize in managerial and professional-technical activities.

This rural-urban division of labor has several disadvantages for the rural parts of the country. First, although there was a brief boom in mining during the early 1980's, both mining and agriculture have had long declines in employment that are likely to continue (see Castle and others below). In contrast, business services employment grew by over 25 percent between 1979 and 1986, nearly twice as fast as total U.S. employment.

Second, routine manufacturing industries tend to be old industries with relatively stagnant demand (see Bloomquist below). They have recently come under severe competitive pressure from Asian producers. In contrast to the younger, more vigorous complex manufacturing industries, which fully recovered from the recession of the early 1980's, the routine manufacturing industries had nearly 12 percent fewer jobs in 1986 than they had had in 1979 (bottom panel, table 6).

Third, while overall manufacturing employment declined by 6 percent between 1979 and 1986, this decline did not affect all types of jobs equally. White collar manufacturing jobs increased by 12 percent while production jobs declined by 14 percent (12). Seventy-four percent of the nonmetro manufacturing jobs were production jobs in 1986, compared with only 55 percent in metro areas. Production job losses, whether through declining demand, new labor-saving technology, or competition from abroad, seem likely to affect rural manufacturing jobs more than urban manufacturing jobs.

Fourth, manufacturing jobs, particularly production jobs, are more susceptible than service sector jobs to business cycle and other macroeconomic fluctuations. Some but not all of this is captured in Malley and Hady's analysis below. Their model would have shown even greater metro-nonmetro differences had they been able to take into account the types of occupations as well as the types of industries that are rural.

To demonstrate the importance of rural-urban differences in industry mix, hypothetical 1979-86 growth rates were calculated for each county type based on 1979 employment in the six industry sectors for the county type and assuming that industry sector growth rates were constant across county type. Hypothetical rates were also calculated excluding construction and consumer services jobs. Construction and consumer services occupy over half the work force in both rural and urban areas. More than other industry sectors, their local growth depends on what is happening in the rest of the local economy.

The hypothetical overall area growth based on the 1979-86 sectoral growth rates indicate a substantial industry mix disadvantage for rural areas (table 7). The metro rate of 14 percent is 40 percent higher than the nonmetro rate of 10 percent. Only urban nonmetro counties located away from metro areas have industry mixes nearly as favorable as metro industry mixes. Omitting construction and consumer services from the analysis increases the rural-urban contrast considerably. On the basis of industry mix alone, large metro area employment in sectors other than construction and consumer services would have grown by around 12 percent over the 1979-86 period. In contrast, the corresponding hypothetical rates for rural adjacent and nonadjacent counties are less than 3 percent.

While data are not available through 1986, comparisons of expected with actual growth for the 1979-84 period indicate that nonmetro areas were doing more poorly than expected on the basis of industry mix. One reason was that construction and consumer services, both heavily dependent on growth in other industries, were growing more slowly in rural than in urban areas. Apparently, the job losses in rural resource industries and routine manufacturing were affecting the rural demand for consumer services and construction.

While rural areas have clearly been disadvantaged by their industry mix, there are other potential disadvantages as well. First, while the issue is only now being studied, it seems likely that rural vulnerability to business cycles and other sources of job instability is compounded by the sparseness of rural settlement and distance from major employment centers. Layoffs in one location are less likely in rural than in urban locations to be balanced by hirings by another employer in the same location. There is no local pool of employers in a small town. The need to look on an areawide basis makes the hunt for rural jobs more difficult and the likelihood of long-distance commuting greater. Since changing jobs may mean changing both industry and occupation, skills learned in one job may be largely irrelevant in the next.

A final disadvantage relates to the starting of new businesses. Rural areas tend to specialize in slow-growth industries, which offer relatively few opportunities for new and expanding businesses. It may also be difficult to take advantage of the opportunities that do exist. With farming the possible exception, production jobs, the specialty of rural areas, compare unfavorably to managerial and professional-technical jobs in terms of providing the skills, knowledge, and contacts necessary for starting and managing new businesses. Moreover, rural entrepreneurs may have difficulty finding the expertise and market information needed to make a new business succeed. This suggests that rural area growth must rely inordinately on the relocation of firms and branch plants out of major cities.

Rural Trends and Prospects

Employment projections for 1984-95 prepared by the Bureau of Labor Statistics (BLS), Department of Labor, suggest a continued rural disadvantage in industry mix (7). Resource industry job losses are expected to continue (see table 6, bottom panel). While the forecast for manufacturing employment is optimistic, complex manufacturing is expected to provide almost all the job growth. Business services will continue to be the strongest industry sector according to BLS.

Projections of area growth based on the BLS estimates of sector growth suggest that rural-urban differences, with rural areas only growing about 2/3 as fast as urban, will follow much the same pattern as found for 1979-86, (table 7). Again, the rural-urban discrepancies are greater when construction and consumer services are excluded. On the basis of industry mix alone, large metro areas are expected to grow by 19 percent over the 1984-95 period, compared with under 6 percent in the rural nonmetro counties.

These area projections may be assuming incorrectly that sectoral growth rates are the same in rural and urban areas. The decline in rural resource industries aside, the rural-urban division of labor appears to have become more marked in recent years, to the probable detriment of rural areas. Bloomquist (in the following chapter) shows that nonmetro areas have been increasing their share of routine manufacturing but not of complex industries. Miller and Bluestone (chapter 6 below) conclude that business or producer services tend to be concentrating in metro areas more than manufacturing. Changes in the classifications of occupations have made comparisons over time tenuous, but some recent research suggests that managerial and professional-technical jobs are becoming increasingly concentrated in metro areas (2, 9).

A related question that arises in this context is whether rural-urban differences in education are affecting the rural-urban division of labor. Rural education levels have risen considerably in recent years, especially with the entrance of the relatively well-schooled baby boom generation into the labor force in the 1970's. The proportion of the nonmetro population age 25 and over who had completed high school rose from 35 percent in 1960 to 45 percent in 1970 and 60 percent in 1980 (6). College completion rose from 5 percent of the nonmetro population 25 and over in 1960 to 12 percent in 1980. Metro education levels increased at a somewhat faster rate, however. Between 1960 and 1980, nonmetro areas gained in their share of population with high school or less education but not in their shares of people with at least one year of college (fig. 5).

This concentration of more highly schooled people in metro areas and less schooled people in nonmetro areas appears to have continued into the 1980's. Migration data from the 1970's for people age 25-64 show a net movement of all education groups into nonmetro areas. The 1984 and 1986 U.S. Census Current Population Survey data for the same age group indicate little net movement of people with less than a high school education, but a net migration of college graduates out of nonmetro areas at a rate of about 2 percent per year. This pattern, if maintained, will have a substantial impact on nonmetro education levels by 1990. It suggests a growing contrast between highly educated urban labor markets and less educated rural labor markets. It also suggests that the shift of managerial and professional-technical jobs to urban areas is due less to low numbers of nonmetro college graduates than to a disinclination of college graduates and their employers for rural locations. Fortunately, the rate of loss (17 pct.) is lowest in the nonmetro South, the region with the lowest current education levels (see Swanson and Butler, chapter 7).

Technological gains in the communicating and processing of information might be thought to make urban centers obsolete. People in distant locations can now access immediately information that once took days to obtain; teleconferences can be called involving several people at different locations; documents can be sent electronically; and financial transactions can be made almost instantaneously. It is clear, however, that despite these developments, the proximity offered by central locations has remained essential. This is perhaps most evident in the information technology field itself, in the dramatic growth of Silicon Valley. In situations of volatile markets and technology, face-to-face contacts apparently cannot be replaced. Technological gains in communications, information processing, and transportation appear to have permitted the decentralization of routine production activities to rural areas, but not to have made location irrelevant.

A rural-urban division of labor is likely to persist. Rural areas will continue to offer lower land and labor costs than urban areas, but provide less access to new information, specialized knowledge, and skills. Rural employment growth will depend on maintaining rural cost advantages while increasing access to information and knowledge. Some of the programs most conducive to past rural development, such as the agricultural extension system and the interstate highway system, have had just these qualities. Some current initiatives, such as programs for rural entrepreneurs, rural telephone system improvements, and programs built around rural colleges and universities, are heading in this direction. However, the rural disadvantage clearly remains a challenge to be met.

References

1. Christaller, Walter. *Central Places in Southern Germany* (translated by C.W. Baskin). Englewood Cliffs, NJ: Prentice-Hall, 1966.

2. Falk, William W., and Thomas A. Lyson. "High Tech, Low Tech, No Tech: Industrial and Occupational Change in the South Since 1970," unpublished manuscript, Department of Sociology, University of Maryland, Baltimore, 1986.

3. Hawley, Amos H., and Sara Mills Mazie (eds). *Nonmetropolitan America in Transition*. Chapel Hill, NC: University of North Carolina Press, 1981.

4. Hoover, Edgar M., and Raymond Vernon. *Anatomy of a Metropolis*. Garden City, NY: Doubleday & Co. (Anchor Books), 1962.

5. Losch, August. "The Nature of Economic Regions," *Southern Economic Journal*, vol. 5, no. 1, July 1938, pp. 71-78.

6. McGranahan, David A., and others. *Social and Economic Characteristics of the Population in Metro and Nonmetro Counties, 1970-80*, RDRR-58. U.S. Dept. Agr., Econ. Res. Serv., Sept., 1986.

7. Personick, Valerie A. "A Second Look at Industry and Employment Trends through 1995," *Monthly Labor Review*, vol. 108, no. 11, Nov. 1985, pp. 26-41.

8. Richardson, Harry W. *Regional Economics*, Urbana, IL: University of Illinois Press, 1979.

9. Tienda, Marta. "Industrial Restructuring in Metropolitan and Nonmetropolitan Labor Markets," chapter 2 in M.S. Killian, L.E. Bloomquist, S. Pendleton, and D. A. McGranahan (eds.), *Symposium on Rural Labor Markets Issues*, ERS Staff Report No. AGES860721, U.S. Dept. Agr., Econ. Res. Serv., Sept. 1986.

10. Townroe, P.M. *Industrial Movement*. Westmead, England: Saxon House, 1979.

11. Turk, Herman. "Interorganizational Networks in Urban Sociology," *American Sociological Review*, vol. 35, no. 1, Feb. 1970, pp. 1-18.

12. U.S. Department of Labor, Bureau of Labor Statistics. *Employment and Earnings*, vol. 34, no. 1, Jan. 1987.

Table 1—Distribution of industry sector employment across urban counties, 1984

County or area type	Resource Industries 1/	Manufacturing	Construction	Service sector	Total	Total
	Percent					1,000
Metro	42.6	78.3	80.9	82.2	79.3	91,845
Large (1 million + pop.)	16.8	45.4	47.3	50.9	48.0	55,526
Medium (250,000-999,999)	16.0	24.0	24.1	22.4	22.4	25,925
Small (under 250,000)	9.7	8.8	9.5	8.9	9.0	10,395
Nonmetro	57.4	21.7	19.1	17.8	20.7	23,948
Urban adjacent 2/	6.5	5.2	3.7	3.7	4.1	4,710
Urban nonadjacent	5.8	2.9	3.3	3.3	3.3	3,879
Rural adjacent 3/	19.2	6.7	5.7	4.8	5.9	6,831
Rural nonadjacent	25.9	7.0	6.4	6.1	7.4	8,528
Total	100.0	100.0	100.0	100.0	100.0	115,793

1/ Agriculture, forestry, fishing, and mining.
2/ Urban counties have at least 20,000 urban residents. Adjacent counties abut on at least one metro area.
3/ Rural counties have under 20,000 urban residents.

Source: Bureau of Economic Analysis, Department of Commerce unpublished data.

Table 2--Types of jobs by industry sector

Job type	Resource industries	Manufacturing	Construction	Service sector
		Percent		
Management 1/	5.0	10.8	13.0	12.1
Professional-technical	6.5	11.5	3.2	18.8
Sales and management support	6.7	16.0	8.3	30.4
Service/transport	5.4	5.4	6.8	22.5
Skilled production	40.6	20.6	57.9	6.2
Less skilled production	35.8	48.8	10.9	2.0
Total	100.0	100.0	100.0	100.0

1/ Management is narrowly defined to exclude farm operators and managers and production supervisors (both included under skilled production), as well as small retailers and sales supervisors (included under sales).

Source: Current Population Survey, Bureau of the Census, 1986

Table 3--Resource industry jobs in nonmetro areas, by type of job

Job type	Agriculture and forestry	Mining	Total
		Percent	
Management 1/	12.6	20.2	17.7
Professional-technical	29.7	25.6	27.5
Sales and management support	38.6	23.9	30.9
Service/transport	45.3	67.9	61.7
Production	59.0	62.9	59.5
Total	55.7	46.5	53.6

1/ Management is narrowly defined to exclude farm operators and managers and production supervisors (both included under production).

Source: Current Population Survey, Bureau of the Census, 1986

Table 4 -- The distribution of business and consumer services employment across urban and rural types of counties, 1984

County and area type 1/	Business services	Consumer services	Total civilian employment
	Percent		
Metro	87.0	80.1	79.3
Large	58.5	47.5	48.0
Medium	21.1	23.0	22.4
Small	7.4	9.6	9.0
Nonmetro	13.0	19.9	20.7
Urban adjacent	2.5	4.2	4.1
Urban nonadjacent	2.5	3.6	3.3
Rural adjacent	3.5	5.3	5.9
Rural nonadjacent	4.5	6.8	7.4
Total	100.0	100.0	100.0

1/ For an explanation of categories, see table 1.

Source: Bureau of Economic Analysis, Department of Commerce, unpublished data.

Table 5--Construction jobs in nonmetro areas, by type of job

Job type	Percent
Management and professional-technical 1/	18.7
Sales and management support	14.4
Skilled production	22.0
Labor, other	28.7
Total	22.0

1/ Professional-technical combined with management due to survey sample size limitations.

Source: Current Population Survey, Bureau of the Census, 1986

Table 6 — Distribution of civilian employment by industry sector in metro and nonmetro areas, 1984, and industry sector growth 1979-86 and projected growth 1984-95

County and area type 1/	Resource Inds. 2/	Manufacturing		Construction	Service sector		Total
		Routine	Complex		Business	Consumer	
				Percent			
Metro	2.9	8.3	8.2	5.1	24.4	51.0	100
Large	1.9	7.2	8.6	4.9	27.2	50.1	100
Medium	3.9	10.0	8.0	5.4	21.0	51.8	100
Small	5.9	9.7	6.7	5.3	18.3	54.1	100
Nonmetro	15.0	12.6	5.0	4.6	14.0	48.7	100
Urban adjacent	8.7	13.8	7.4	4.5	13.8	51.7	100
Urban nonadjacent	9.4	10.1	4.6	5.0	16.7	54.2	100
Rural adjacent	17.6	13.9	5.0	4.8	13.1	45.6	100
Rural nonadjacent	19.0	12.0	4.0	4.4	13.7	46.9	100
Total	5.4	9.2	7.6	5.0	22.3	50.5	100
U.S. growth rates:				Percent change in employment for period shown			
1979-86	-2.1	-11.7	2.9	15.7	25.1	17.6	13.1
1984-95 (proj.)	-6.4	-2.9	17.8	12.1	27.1	14.2	14.5

1/ For an explanation of county and area types, see table 1.

2/ Agriculture, forestry, fishing, and mining.

Sources: Bureau of Economic Analysis, Department of Commerce, unpublished data; (12) for growth rates; and (7) for projected growth.

Table 7 -- Expected employment growth 1979-86 and projected growth 1984-95, based on area industry composition

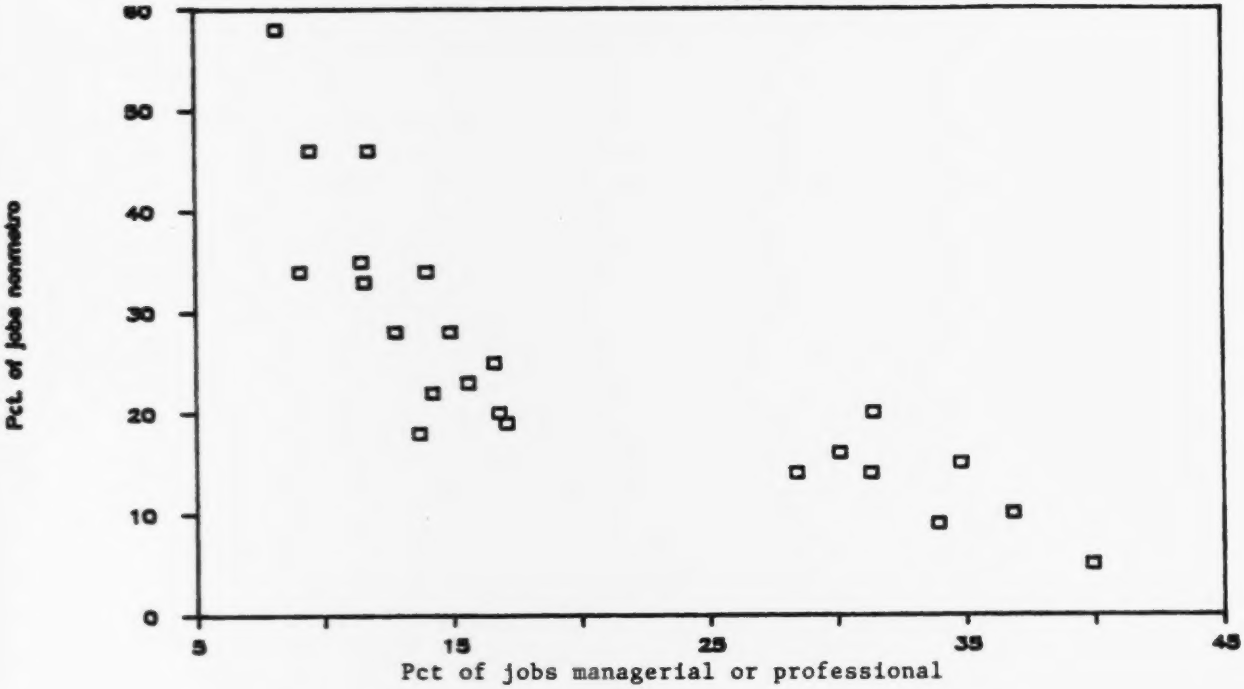
	Expected growth 1/ 1979-86		Projected growth 1984-95	
County type	Overall	Except construction and consumer services	Overall	Except construction and consumer services
	Percent			
Metro	14.2	10.3	15.5	17.5
Large	14.9	11.8	16.3	19.1
Medium	13.3	8.2	14.6	15.3
Small	13.1	7.3	13.8	13.5
Nonmetro	10.5	3.1	10.8	7.2
Urban adjacent	10.8	3.1	12.0	9.4
Urban nonadjacent	12.6	6.2	12.8	10.9
Rural adjacent	9.5	2.0	10.0	5.8
Rural nonadjacent	10.1	2.8	10.1	5.9
Total	13.1	8.7	14.6	15.2

1/ Calculated on basis of industry sector composition 1979 and national growth rates of sectors.

Sources: Employment data: BEA, Department of Commerce.
Sector growth 1979-86: (12).
Projected sector growth, 1984-95: (7)

Figure 1. Manufacturing industries:

nonmetro location by job structure



Routine manufacturing industries

Industry	Managerial and professional-technical jobs	Jobs in nonmetro areas
	——Percent——	
Fabricated metals	17.1	19
Misc. manufacturing	16.8	20
Toys,sports equip.	16.6	25
Tobacco	15.6	23
Stone,clay,glass	14.9	28
Primary metals	14.2	22
Paper	14.0	34
Motor vehicles	13.7	18
Rubber	12.8	28
Textiles	11.8	46
Food	11.6	33
Furniture	11.5	35
Leather	9.5	46
Apparel	9.1	34
Lumber	8.2	58

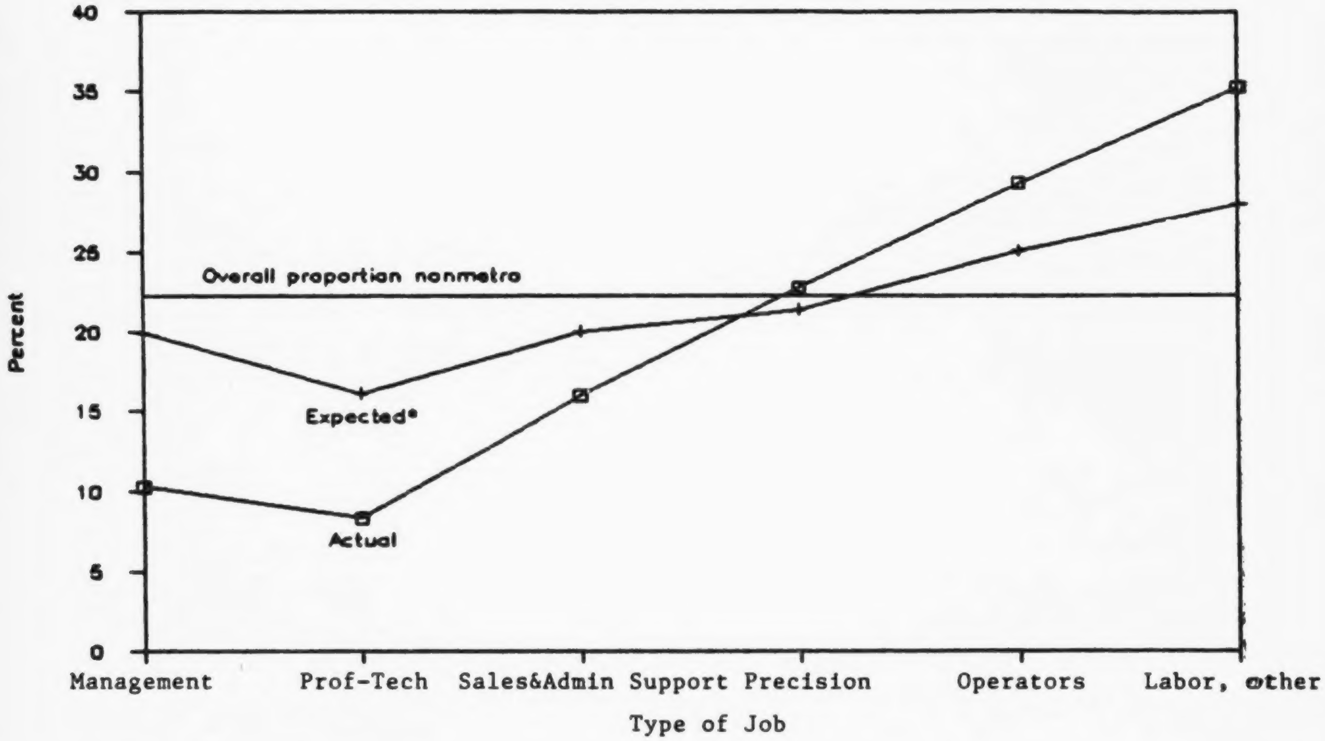
Complex manufacturing industries

Industry	Managerial and professional-technical jobs	Jobs in nonmetro areas
	——Percent——	
Aircraft	39.9	5
Other trans. equip.	36.8	10
Elect. machinery	34.8	15
Professional equip.	33.9	9
Petroleum	31.4	20
Chemicals	31.3	14
Other machinery	30.1	16
Printing	28.4	14

6_

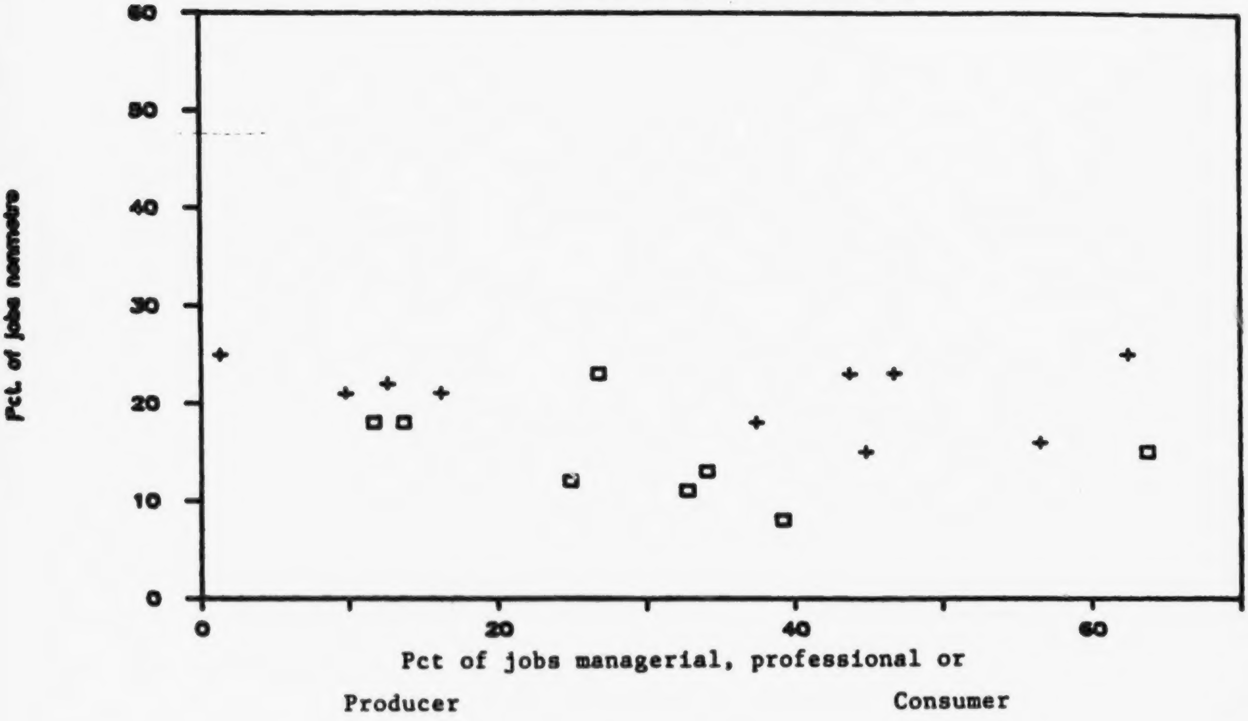
Figure 2 -- Nonmetro Proportion of

Manufacturing Jobs.



Expected on the basis of the types of manufacturing industried found in nonmetro and metro areas.

Figure 3. Service sector industries: nonmetro location by job structure



Producer services

Industry	Managerial and professional-technical jobs	Jobs in nonmetro areas
	Percent	
Other professional	63.8	15
Business serv.	39.2	8
Banking	34.0	13
Communications	32.7	11
Utilities	26.8	23
Insurance	24.9	12
Transportation	13.7	18
Wholesale	11.7	18

Consumer services

Industry	Managerial and professional-technical jobs	Jobs in nonmetro areas
	Percent	
Education	62.5	25
Hospitals	56.5	16
Social serv.	46.8	23
Entertainment	44.9	15
Other health	43.8	23
Public admin.	37.4	18
Personal serv.	16.2	21
Repair	12.6	22
Retail	9.8	21
Household	1.3	25

Figure 4 - Nonmetro Proportions of

Service Sector Jobs

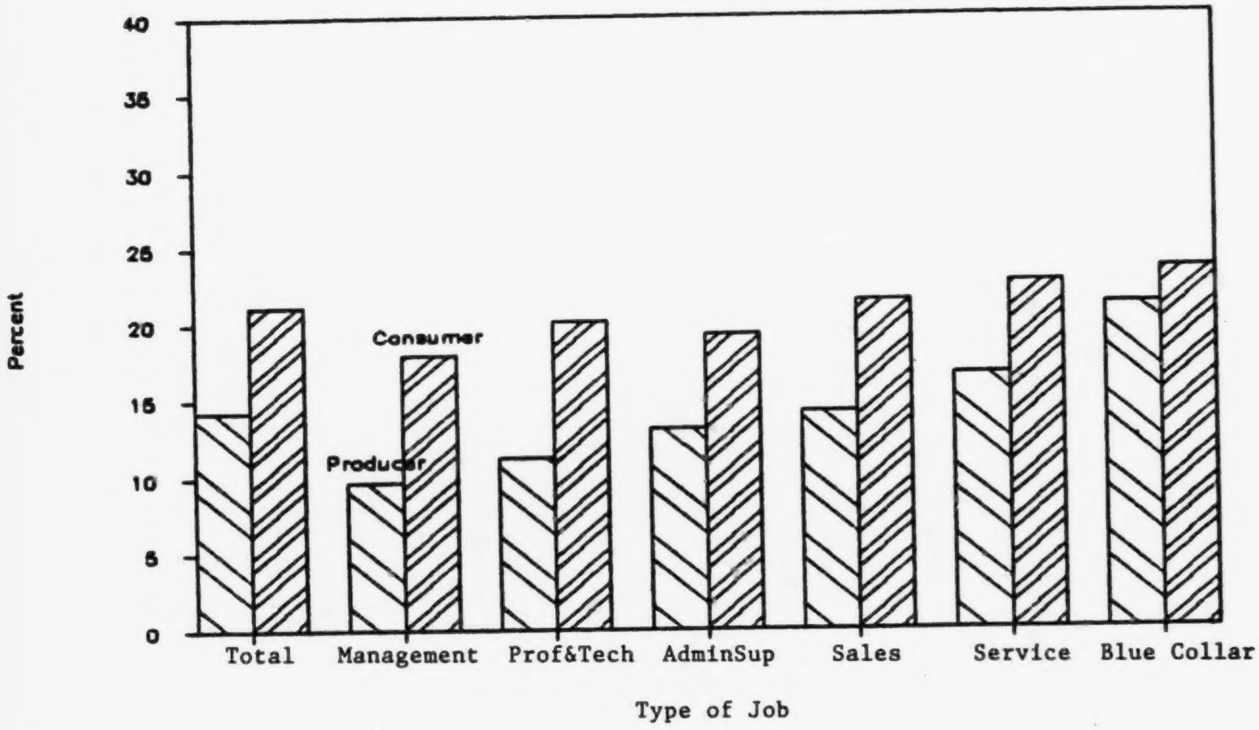
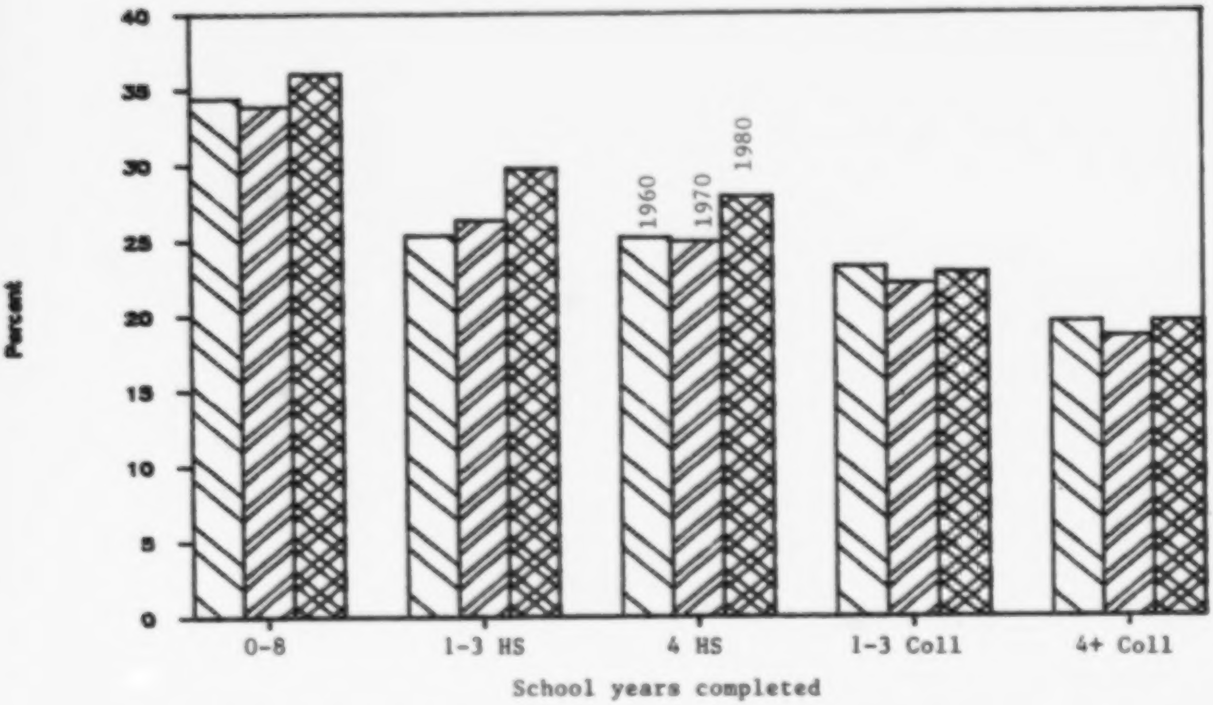


Figure 5. Nonmetro residence by education group



1/ Residence based on 1974 definition of metropolitan areas.
Source: U.S. Census of Population data tapes.

CHAPTER 3

PERFORMANCE OF THE RURAL MANUFACTURING SECTOR

Leonard E. Bloomquist

Abstract. While the rural manufacturing sector has had substantial growth in recent years, most of the growth has been in manufacturing industries that provide low-skill and low-wage jobs. This pattern varies by region and gender. The rural West has had the highest growth rate, and the quality of jobs provided compares favorably with that in other regions. The rural South has experienced substantial employment growth, even though the wage and skill levels of jobs provided are not as good, on average, as in other regions. By contrast, the rural Northeast and Midwest have relatively high-quality jobs, but employment growth has not kept up with growth in the West and South. Finally, rural (and urban) women tend to be employed in manufacturing jobs that require lower skills and pay less than men.

Record trade deficits and the shift of employment from manufacturing to services have generated discussions about the future of American manufacturing. Trade deficits have resulted from increased foreign competition in manufacturing production. The high exchange rate of the American dollar was an important factor for a time, and continues to be against some currencies, but more important is the erosion of the competitiveness of American manufacturing industries (22). 1/ The shift of employment from manufacturing to services is a long-term process that can be traced to the early part of the 20th century, when service employment began growing at a faster rate than manufacturing (5). Since 1979, however, manufacturing employment has actually declined. The decline has been most pronounced in the traditional manufacturing belt, leading some analysts to warn of the "deindustrialization" of America (2).

The performance of U.S. manufacturing is especially important for rural America, because while urban areas have become increasingly dominated by service industries, the manufacturing sector has maintained a substantial share of employment in rural areas. The proportion of wage and salary employees working in the manufacturing sector in 1984 was 22.4 percent in nonmetro

---

Leonard E. Bloomquist is a sociologist in the Agriculture and Rural Economy Division, ERS.

1/ Underscored numbers in parentheses refer to sources listed in the References section at the end of the chapter.

counties, compared with only 18.5 percent in metro counties. 2/ Moreover, the difference in the relative importance of manufacturing employment has only emerged since 1969, when manufacturing employment accounted for 26 percent of total wage and salary employment in both metro and nonmetro areas. 3/

In this chapter, I analyze the recent performance of the rural manufacturing sector. Of particular interest are the ability of manufacturing industries to increase, or at least maintain, their employment levels in rural areas and the occupational distributions and average earnings of rural manufacturing workers. On both of these criteria, the rural manufacturing sector has performed fairly well since 1969, although there is considerable diversity in the performance of specific types of manufacturing industries and in certain regions. In addition, there are striking differences between the kinds of jobs that women and men hold in the rural manufacturing sector. Both the overall performance and the diversity underlying it are documented below.

The focus on manufacturing employment is not the only perspective one could take on the performance of U.S. manufacturing industries. Viewed from the perspective of industry output, U.S. manufacturing has grown continuously since 1960, although at a lower rate in the last 15 years than during the 1960's. Moreover, a Bureau of Labor Statistics study projects that manufacturing output will continue growing at a faster rate than employment well into the 1990's, and perhaps even widen (18).

It seems, therefore, that U.S. manufacturing has performed much better when viewed from the perspective of output than the trends in manufacturing employment suggest. My focus on employment stems from a concern with the rural manufacturing sector as a source of employment for rural residents. To the extent that manufacturing output is considered, it will be in reference to how the output, or products, of different manufacturing industries are related to their employment trends since 1969 and to the kinds of jobs they provide.

Growth in Rural Manufacturing Since 1960

The growth in rural manufacturing employment is not a new phenomenon. In fact, the 1960's were the boom years for the rural manufacturing sector. Between 1960 and 1970, manufacturing employment grew by 22 percent in nonmetro areas, compared with only 4 percent in metro areas (20). After 1969, the last year of the longest economic boom of the post-World War II period, the rate of growth in the rural manufacturing sector declined (4). Its performance nonetheless exceeded that of the urban manufacturing sector. Between 1969 and 1979,

---

2/ The terms, rural and nonmetro or urban and metro, are used interchangeably in this article. The rural/urban distinction is more relevant to the conceptual model discussed later, but the available data require use of the nonmetro/metro distinction in the empirical analysis. The latter distinction is based on application of the 1980 Census of Population procedures for defining Metropolitan Statistical Areas (MSA's).

3/ The statistics cited in this paragraph are derived from the Bureau of Economic Analysis (BEA) Employment series data.

manufacturing employment grew by 17.4 percent in nonmetro areas, while the growth rate in metro areas was only 1 percent. The two economic recessions of the early 1980's contributed to a drop in manufacturing employment from the peak levels of 1979. Once again, though, the decline was much more pronounced in metro areas (fig. 1—see figures at end of chapter).

Manufacturing employment in both metro and nonmetro areas grew or declined in conjunction with the business cycles of 1969-84. The rural manufacturing sector was more sensitive to business cycles than was the urban sector, especially during expansionary times (note how the metro/nonmetro gap increased whenever growth in manufacturing employment occurred). The pattern of changes in total wage and salary employment makes a striking contrast with the pattern for manufacturing employment. Growth in total employment was fairly steady throughout the period in both metro and nonmetro areas. Thus, there was little, if any, decline in total employment during the four recessions of the period. Moreover, total employment grew by about the same rate in metro and nonmetro areas. Their total employment levels in 1984 were both over 25 percent higher than their 1969 levels. 4/

Comparative Advantages of Rural Manufacturing

With respect to employment growth, therefore, the rural manufacturing sector has outperformed the urban manufacturing sector since 1960. Although some of the growth in rural manufacturing employment stems from local entrepreneurial activity, the driving force has been the migration of manufacturing firms from the cities into rural areas (20). The migration seems to have been spurred by a rural comparative advantage over cities in the cost of key production factors.

The most notable rural advantage has been the cost of labor. Indeed, Kale and Lonsdale contend that "the availability of low-cost labor has probably been the most important attraction influencing industry to locate in nonmetropolitan America" (12). Nonmetro areas have comparative advantages over metro areas in other ways as well. Construction of the interstate highway system, for example, substantially reduced transportation costs for many nonmetro places. Land and taxes are also generally cheaper in nonmetro areas. Finally, many nonmetro places made special concessions to firms in the form of tax exemptions, rent-free plant facilities, and so on (20). These concessions were especially attractive to firms that had no site-specific or skill requirements.

Of course, a comparative advantage in a productive factor affects industrial location decisions only when the factor is significant to the organization of production in a given industry. For instance, availability of low-cost labor is not crucial among many "high-tech" firms. For them, the concern is with the

---

4/ The implication of the contrast between changes in total and manufacturing employment is that other types of industry (in particular, service industries) have had higher growth rates in metro areas. See the chapter in this volume by Miller and Bluestone (15) for an analysis of service industries.

availability of highly skilled professionals or technicians; having them available at low cost is not the crucial consideration (3). To the extent, therefore, that the availability of low-cost labor is a major advantage that rural areas have over cities, then they may not appear especially attractive to high-tech firms.

Differences Among Manufacturing Industries

The last point is a very important one, for it implies that more than just changes in employment should be taken into consideration when evaluating the performance of the rural manufacturing sector. Most analysts and policymakers alike argue that employment in high-tech industries is preferable to growth in labor-intensive industries, largely for two reasons. First, the relatively high proportion of professionals and technicians in high-tech industries is considered desirable, because their jobs tend to have better working conditions and higher earnings than jobs filled by workers in blue-collar occupations (16). Second, American high-tech industries have proven more competitive in the world economy (13), and thus have greater potential for employment stability (and possibly growth) in an increasingly competitive world economy.

While the label of "high-tech" industries is a popular one, it is somewhat misleading. Many manufacturing industries that are not regarded as high-tech actually use highly sophisticated technology. For example, automobile manufacturers are generally not included in delineations of high-tech industries, and yet the increased use of robotics in their production involves a highly sophisticated technology (18). It is not the technology *per se* that is important, but how a technology is incorporated into the organization of production within a manufacturing industry. The BLS definition of high-tech industry lists three criteria: (1) a high proportion of scientific and technical personnel in the workforce, (2) a high level of research and development expenditures, and (3) a highly sophisticated product (18). These criteria suggest that high-tech industries are distinguished from most other manufacturing industries by their occupational structures and emphasis on product development and innovations. The product cycle model helps to classify manufacturing industries along these lines. Moreover, the model provides a rationale for identifying the comparative advantages of rural areas and cities in the location decisions of different manufacturing industries.

The Product Cycle Model

The product cycle model defines types of manufacturing industry as the result of the complex interaction between product development and labor requirements. Industries with products in the early developmental stages require labor with a high degree of technical skill, whereas industries with products that have developed into a stage of standardized production are not as dependent on technically skilled labor. As Glasmeier puts it,

> During product conception and prototype production, firms employ high proportions of technically trained engineers and technicians. These craftsmen's skills become less important in fabrication as

> production and materials handling skills become more essential. During the final stages of manufacturing production, workers are engaged in tedious but exacting assembly of component parts. Although great concentration is required of assemblers, levels of technical skill are quite low (7, p. 199).

Although proponents of the model differ in the number of "phases" of the product cycle they identify, the basic contrast is between industries with products at the beginning, or "top," of the cycle and those with the products at the end, or "bottom," of the cycle (1, 11, 21). Requirements for skilled labor are greatest when a product is at the top of the product cycle, but diminish as a product approaches the bottom of the cycle. In the latter phase, production becomes highly standardized, and the main labor requirement is for assemblers and materials handlers.

Thus, top-of-cycle industries are distinguished by their demand for technically skilled labor, while bottom-of-cycle industries are distinguished by their demand for labor with relatively low technical skills. High-tech industries are, of course, included in the former category. Some examples of top-of-cycle industries are the scientific instruments and related products and chemical and allied products industries. Both industries have higher proportions of professionals and technicians than most manufacturing industries. By contrast, the textile and motor vehicle industries are examples of bottom-of-cycle industries, with their high proportions of operators and laborers. Since professionals and technicians tend to earn more than other occupations, and they generally have better working conditions, top-of-cycle industries rank higher on the qualitative dimension of industrial performance. The performance of the rural manufacturing sector would therefore be enhanced more by growth in top-of-cycle industries.

According to Wilbur Thompson's concept of the "filtering down" process of production, however, the bulk of rural manufacturing should be in bottom-of-cycle industries (21). He contends that the skilled labor requirements of industries in the early phases of a product cycle give urban areas a comparative advantage, due to the higher skills of metro workers. Furthermore, early product development requires a high degree of interaction between technical workers and corporate finance and marketing staff. Since business services are predominately urban, urban areas have the comparative advantage in the location of initial production facilities (14). It is only as production moves toward the bottom of the product cycle that industrial location "filters down" to nonmetro places.

"Resource-Based" Manufacturing in Rural Areas

As noted above, the product cycle model stresses the relationship between an industry's product and its labor requirements in the definitions of types of manufacturing industry. Although labor is an important production factor in all manufacturing industries, for some manufacturers access to natural resources is the crucial factor of production. For example, access to lumber is essential to the lumber and wood products industry. The same may be said for industries that transform agricultural products such as food stuffs and cash crops into a manufactured product. The tobacco industry is a case in point.

Among "resource-based" manufacturing industries such as the lumber and tobacco industries, the organization of production is influenced more by characteristics of the resource that is manufactured than by the interaction between product development and labor requirements. Locating in rural areas often provides a competitive advantage for resource-based manufacturers, since natural resources and agricultural products are generally located in rural areas. To the extent that these kinds of resources are crucial components of an industry's production, rural areas will have a comparative advantage over urban areas.

Typology of Manufacturing Industries

Hufbauer and Chilas have developed a model of manufacturing industries that is based on the above rationale for differentiating types of manufacturers (11). They classify manufacturing industries according to the production factor that plays the crucial role in determining competitive advantages within an industry (table 1--see tables at end of chapter). The first type, top-of-cycle industries, 5/ includes industries for which the availability of highly skilled technical labor is crucial. Recall that the importance of labor with technical skills stems from an industry's product being in the early stages of development. By contrast, production within bottom-of-cycle industries is highly standardized, and the labor requirement is for assemblers and materials handlers. Finally, the third type refers to resource-based industries, industries whose production is highly dependent on access to natural resources or agricultural products.

Two potential problems with the typology warrant further discussion. First, the product cycle model is actually a dynamic one, with industries in the top-of-cycle category ultimately expected to move into the bottom-of-cycle category as production becomes more standardized. This is a long-term process, however, and it should not affect the industry classification during the 15-year period of study (1969-84). Second, most analyses of the product cycle model and high-tech manufacturing industries use a more detailed listing of manufacturers than the one used here (11, 17, 18). Unfortunately, data with more detailed categories of industries are not available. Thus, there is some classification error in the categories reported in table 1. 6/ Maskus found, however, that use of the typology in table 1 produces the same results in his

---

5/ I use a different labeling scheme than the one used by Hufbauer and Chilas. Their labels are derived from the literature on international trade, and are not directly relevant to concerns of the present analysis. Instead, I follow Gilmer and Pulsipher's (6) relabeling of the industry types that makes them more reflective of the product cycle model.

6/ For instance, some transportation equipment manfuacturers would be classified as bottom-of-cycle manufacturing industries if a more detailed listing of manufacturers was available.

analysis of the net exports of American manufacturing industries as when he used a typology based on a more detailed listing of manufacturers (13). Important differences exist among the three types of manufacturing industries. Most differences seem to favor top-of-cycle manufactureres as having the greatest performance potential. First, they have performed better than bottom-of-cycle and resource-based industries in world trade. In fact, Maskus (13) finds that since the late 1960's, only American top-of-cycle manufacturing industries have performed well in the world economy. During a period in which U.S. manufacturing industries as a whole suffered trade deficits, top-of-cycle industries had positive net exports in their competition with manufacturers from other countries. Maskus shows further that the positive performance of American top-of-cycle manufacturing industries is mainly due to U.S. comparative advantage in the availability of labor with high technical skills. Top-of-cycle industries thus have the greatest potential for long-term employment stability, if not growth.

Top-of-cycle industries seem to perform better in another aspect of performance as well--the kinds of jobs provided. Comparison of the occupational distributions of the three types of manufacturers shows that top-of-cycle industries have much higher proportions of professionals and technicians than the other two types of manufacturing industries (fig. 2). Moreover, this distinction of top-of-cycle manufacturers holds in nonmetro areas as well as metro areas. Rural manufacturing industries do have higher proportions of assemblers and materials handlers (operators and laborers) than their counterparts in urban areas, but nonetheless top-of-cycle manufacturers provide the highest proportion of technically skilled jobs within the rural manufacturing sector.

The occupational distributions of bottom-of-cycle and resource-based manufacturing industries are similar. Both industry types have much lower proportions of professionals and technicians than top-of-cycle industries. One difference between them, though, is that rural resource-based industries have higher proportions employed as craftspersons than rural bottom-of-cycle industries. Since craftspersons tend to earn more and have better working conditions than operators and other blue-collar occupations (16), rural resource-based industries seem to rank second in the quality of jobs they provide to rural residents.

Metro/Nonmetro Differences in Manufacturing Employment

Although rural manufacturing has grown faster than manufacturing in the urban sector, the product cycle model suggests that the rural sector's growth involves mostly bottom-of-cycle and resource-based industries, while top-of-cycle industries should favor urban areas. Table 2 lists the metro and nonmetro employment figures for the three types of manufacturers, plus the totals for manufacturing and wage-and-salary employment. The figures are reported for 3 years: 1969 and 1984 (to reflect the beginning and end of the period of study) and 1979, the peak year of U.S. manufacturing employment. In each year, the proportion of top-of-cycle manufacturing employment located in nonmetro areas is substantially below the nonmetro proportion of total manufacturing and wage-and-salary employment. By contrast, the proportions of bottom-of-cycle and resource-based manufacturing employment located in nonmetro areas are above the total figures. The rural and urban manufacturing sectors seem, therefore, to have different specializations which are consistent with the product cycle model.

The different specializations of the rural and urban manufacturing sectors are even more striking when the distributions of employment among the three types of manufacturing industries within rural and urban areas are compared. Manufacturing employment in metro areas is much more concentrated in top-of-cycle industries (fig. 3). Indeed, the proportion for urban areas actually increased substantially between 1969 and 1984. Although the proportion of rural workers employed in top-of-cycle industries also increased, the increase was slight.

The increased significance of top-of-cycle industries to the urban manufacturing sector results from the relatively poor performance of urban bottom-of-cycle and resource-based industries between 1969 and 1984. Figures 4A-4C show that top-of-cycle manufacturing industries were the only type to increase their employment levels in metro areas. By contrast, rural manufacturing employment grew by over 10 percent among all industry types. Comparison of the metro and nonmetro trend lines shows further that while a substantial gap developed between them in the rates of change of bottom-of-cycle and resource-based industries, changes in top-of-cycle employment remained roughly parallel (although note the slightly higher growth rate of top-of-cycle employment in the rural manufacturing sector).

Diversity in the Rural Manufacturing Sector

The product cycle model can be applied to an analysis of regional roles in the structure of American manufacturing. Historically, the manufacturing belt stretching from the Northeast to the Midwest was the core economic region, serving as the seedbed for product innovations. By contrast, the South and West traditionally have been the "periphery," or underdeveloped economic regions. Norton and Rees note that during the early twentieth century, the core specialized in top-of-cycle industries that would grow rapidly, such as the machinery or fabricated metal industries, while the periphery specialized in relatively stagnant resource-based industries like lumber or tobacco products (17). Moreover, even though industries in the core tended to decentralize their production into the periphery as their products moved toward the bottom of the product cycle, the core maintained its hegemony by being the primary locale for product innovations.

Although the manufacturing belt mainly encompassed urban areas of the Northeast and Midwest, the economic structure of rural areas in these regions benefited as well. By contrast, rural areas of the South and West were the most peripheral, due to the compounded effects of the regional division of labor and the general disadvantages of rural areas as locations for top-of-cycle industries.

This traditional division of labor has produced distinct economic roles for rural America (fig. 5). Rural areas of the Northeast and Midwest have very similar industrial structures. They are also distinguished from the rural South and West by their greater reliance on top-of-cycle industries for employment. Note, too, that the overall distribution of employment indicates a more diverse industrial structure for the rural Northeast and Midwest.

The rural South and West are similar to each other in that they are highly specialized in traditionally rural (or peripheral) industries. They differ, however, in their specializations. Historically, the rural South specialized in bottom-of-cycle industries. The major reason for this specialization is the abundance of relatively cheap labor, made possible by the tremendous labor displacement in southern agriculture since World War II (8, 19). The rural West, on the other hand, has specialized in resource-based industries, resulting from the abundance of natural resources, coupled with the relative scarcity of labor in this sparsely populated area (9).

Norton and Rees contend that there has been a reversal in the traditional roles of American regions. They note that since the mid-1960's, top-of-cycle industries have grown faster in the South and West than in the traditional core. They also show how the core's competitive losses in bottom-of-cycle employment reached floodtide proportions during the 1970's (17). The authors interpret the shift in employment trends as a transformation in the traditional core-periphery relationship, with the South and West emerging as the new core of American manufacturing. They do not distinguish between rural and urban in their analysis, but one would expect the regional pattern to hold for both rural and urban areas.

Regional Variation in Employment Trends

Changes in rural manufacturing employment between 1969 and 1984 conform to the regional pattern identified by Norton and Rees. Figures 6A through 6C chart nonmetro employment levels for the three types of manufacturing industry, by region. Consistent with Norton and Rees's conceptualization, top-of-cycle employment grew faster in the rural West and South than in rural areas of the Northeast and Midwest. The higher growth rate was especially pronounced in the rural West, where top-of-cycle employment more than doubled between 1969 and 1984. Although the rate of increase was not as high in the rural South, it nonetheless grew there at a much higher rate than in the rural areas of the traditional core. In fact, the latter experienced a slight decline in top-of-cycle employment during this period. It also should be noted that the gaps in regional growth rates became most pronounced after 1979. Thus, the comparative advantages of the rural West and South as locations for top-of-cycle industries seem to have increased in recent years. 7/

With regard to bottom-of-cycle employment, the rural West again experienced the highest growth rate. Growth in the rural South was not substantially different from growth in the rural Midwest, however. Southern manufacturers in this

---

7/ The same regional pattern held for metro areas as well.

category apparently were slightly more successful at maintaining their employment levels during the early 1980's than those in the rural Midwest, but overall the employment trends are quite similar. The same cannot be said about employment trends in the rural Northeast. The Northeast was the only region in which bottom-of-cycle employment declined.

The regional pattern of changes in resource-based manufacturing is more complex than the patterns for the other two types of manufacturing industries. The complexity arises mainly from the plummeting of employment levels in western resource-based industries in the early 1980's. The apparent cause of this was the glut of oil and other energy resources on the world market since 1980.

Until 1979, though, resource-based manufacturing employment grew as rapidly in the rural West as in the rural South. Moreover, in the late 1970's, their growth rates were much higher than in rural regions of the traditional core (especially in the rural Northeast, which experienced employment declines in resource-based industries as well).

The regional variations in the performance of rural manufacturing industries suggest that the rural manufacturing sector should not be treated as a homogeneous entity. In terms of employment growth, manufacturing industries have performed better in the rural West and South than in rural regions of the Northeast and Midwest. Furthermore, the highest growth rates in the West and South were in the industries that each region had been least specialized in historically. The long-term consequences of these employment trends should be a more diversified industrial structure in the rural West and South. 8/ The Northeast had the worst performance with regard to employment change in rural manufacturing. Employment declined between 1969 and 1984 in all types of manufacturing industries. From the standpoint of growth or stability in employment, the rural manufacturing sector did not fare well in the Northeast.

Employment change is only one dimension of performance, however. Rural manufacturing industries in the Northeast may be providing better jobs than in other regions. That is, manufacturing jobs in the rural Northeast might have more favorable occupational distributions and pay higher earnings than manufacturing jobs in other regions of rural America. Conversely, the advantage that the rural West and South enjoy in terms of job growth may be counterbalanced by the fact that manufacturing jobs in these regions are less desirable than in the Northeast or Midwest.

8/ The structure of the rural manufacturing sector in 1984 was not substantially different from the 1969 structure depicted in fig. 5. The rural West and South were slightly less specialized in 1984, but the 1969-84 period is too short for their employment trends to have significantly altered their industrial structures. If the trends should continue over a longer term, however, the result would be a much more diverse industrial structure in both regions.

Occupations and Earnings In The Rural Manufacturing Sector

The product cycle model implies that the greatest contrast in occupational distributions should exist between top-of-cycle and bottom-of-cycle manufacturing industries. The evidence presented in fig. 2 supports this aspect of the model, for the urban as well as the rural manufacturing sectors. Top-of-cycle manufacturers are distinguished by their greater relative demand for professionals and technicians while bottom-of-cycle manufacturers have a greater relative demand for operators and laborers. Earnings should be higher in top-of-cycle industries as well.

Analysis of the kinds of jobs provided by different types of industries would be incomplete, however, without considering the division of labor between women and men. The differences between the occupations held and earnings received of women and men are significant and pervasive. Previous analyses have found significant gender differences in occupations and earnings in urban as well as rural labor markets, and in markets of various industrial specializations (10, 14). 9/

Gender and Occupation In Rural Manufacturing Industries

Gender differences in the occupational distributions of rural manufacturing industries undermine the support for the product cycle model reported above. Most significant in this respect, only men have a significantly higher proportion of top-of-cycle workers employed in professional and technical occupations (fig. 7). The proportion of women in these occupations does not vary significantly across types of rural manufacturers. Women in top-of-cycle industries have a higher proportion employed in craft occupations than women in the other two industry types, however. A possible interpretation of this pattern is that, while top-of-cycle industries do require a more highly skilled female workforce than either bottom-of-cycle or resource-based industries, the gender division of labor places women in skilled blue collar occupations rather than in the more prestigous (and higher paying) occupations of professionals and technicians, which tend to be filled by men.

An interesting regional pattern exists in top-of-cycle employment (table 3). Top-of-cycle industries in the rural Northeast and West have much higher proportions of men employed as professionals and technicians than those in other regions. This finding may be due to top-of-cycle industries in the rural Northeast and West being more urban than in the Midwest and South. Most rural areas in the Northeast are relatively close to large metro areas. Similarly, growth in top-of-cycle employment was significantly more pronounced in Western

---

9/ Race and ethnic differences also are significant and pervasive. However, it was not possible to analyze the racial division of labor in rural manufacturing because of the small numbers of minorities in rural areas outside the South.

nonmetro counties adjacent to a metro area than in nonadjacent counties; this discrepancy was not as pronounced in the nonmetro Midwest and South. 10/

Among the other types of rural manufacturing industry, there is regional diversity only in women's occupational distributions. Among men, the occupational distributions of the traditional rural industries are similar across regions. Among women, however, those employed in the industry that the rural South and West specialized in historically (bottom-of-cycle and resource-based, respectively) are much more concentrated in operative occupations than women working in these industries in the other regions. It seems, therefore, that women's employment opportunities in southern and western rural manufacturing industries are more limited than in northeastern or midwestern industries. In addition to women's manufacturing jobs in the rural South and West being concentrated in traditional rural industries, their jobs also tend to require low levels of technical skills.

Variations in Earnings in the Rural Manufacturing Sector

Level of earnings is another indicator of how well an industry is performing. From the worker's perspective, level of earnings indicates the quality of a job: the higher the earnings, the better a job is, other things being equal.

The most striking contrast in average earnings is between men's and women's earnings. Women working in top-of-cycle industries in the rural Northeast receive the highest average earnings (table 4), but this average is essentially equal to the average of the lowest paid men (bottom-of-cycle workers in the rural South). Part of the gender gap in earnings can be explained by the tendency for women to be concentrated in occupations with lower skill requirements than is true for men; however, the gender gap in earnings exists within occupational groups as well (see below).

Average earnings vary by occupation as well as by region, gender, and industry. Indeed, the variations in earnings could be attributable to differences in occupational distributions, since occupations are grouped according to types and levels of skill (16). Examination of average earnings of occupational groups shows, however, that significant gender and regional differences remain (table 5). 11/

10/ Because of limitations of space, the specific findings are not reported. They are available from the author upon request. Haren and Holling report similar findings (9).

11/ Small sample sizes do not permit a detailed analysis of earnings of occupations within specific type of manufacturing industry. Many of the cell sizes are too small for reliable estimations of average earnings. The pattern of the estimates suggests, however, that regional differences in earnings are strongly related to the occupational distributions of rural manufacturing industries in each region. By contrast, men consistently earn more than women, even within the same occupational group, industry, and region.

Gender differences clearly are the most significant. Men earn substantially more than women in all but one occupational and regional comparison (operatives in the rural Northeast). Moreover, the gender gap in earnings is especially large among managers and professionals, the occupational groups that receive the highest earnings. This is true in all rural regions. Thus, not only are women more concentrated than men in manufacturing jobs that require low levels of technical skill, but women earn less than men even when they have jobs within the same occupational group.

Gender differences also are evident in the pattern of regional variations of occupational earnings. Men in the rural Midwest have high earnings relative to men in the other regions, but midwestern women have relatively low earnings. Another gender difference in the regional pattern of occupational earnings involves southern professional and technical workers. Southern men employed as professionals receive low earnings relative to those in other regions. By contrast, female professionals in the rural South have relatively high earnings. Although the last point implies that southern manufacturing industries have provided high-paying jobs to professional women, note that the lowest average earnings in the whole table is for female operatives in the rural South. Recall, too, that 80 percent of southern women employed in bottom-of-cycle industries work as operatives. Thus, while the rural manufacturing sector in the South seems to have performed well for women with professional and technical skills, for most southern women, it has not.

The overall regional pattern of occupational earnings suggests that manufacturing workers in the rural Northeast receive relatively high earnings, on average. This is especially true for professional and technical workers. Northeastern men and women employed in these occupations receive higher average earnings than their counterparts in other regions. Interestingly, rural West professional and technical workers receive the lowest average earnings among the four regions. Although the occupational distributions of top-of-cycle manufacturing industries implied a similarity in the relatively high demand for professionals and technicians in the Northeast and West, workers in these occupations are paid much better in the rural Northeast than in the rural West.

Conclusions

The rural manufacturing sector has not only maintained its employment levels since 1969, but it has expanded. This is in sharp contrast to the urban manufacturing sector, which has lost employment since 1969. However, the jobs being provided by rural manufacturing industries have a greater proportion of lower paying jobs compared with those provided by urban manufacturing industries.

The key to the urban sector's advantage in the quality of manufacturing jobs seems to be that more top-of-cycle industries are located there. A major reason for this is the comparative advantages of urban places for industries in the early phases of a product's cycle. Nonetheless, the fact that top-of-cycle industries are growing in rural areas (and at a slightly higher rate than in urban areas) suggests that rural places can prove attractive to top-of-cycle industries. Facilitating the location of more top-of-cycle industries in rural areas would seem to require policies to improve the skill levels of rural workers.

It also is important to recognize the regional diversity in the rural manufacturing sector when evaluating its performance. The performance of rural manufacturing industries varies widely across regions. Industries in the rural West have fared quite well, in terms of employment growth as well as the quality of jobs provided. In the rural South, manufacturing industries have done well in expanding the number of jobs, but the jobs being provided are not as high in quality as in other rural regions. The lower quality of southern manufacturing jobs seems especially true for women. The rural manufacturing sector has been less able to maintain its employment levels in the rural Northeast and Midwest than in the other two regions, but the quality of jobs still provided in the rural Northeast and Midwest compares favorably with those in the rural West and South.

Many of the manufacturing jobs in the rural Northeast and Midwest are relatively high quality, thus their loss poses a serious problem for development of rural communities in these regions. State government policies that facilitate the maintenance of these industries, perhaps by improving their productivity and competitiveness, might be considered. Such policies might also recognize that related producer service industries are unlikely to prosper when basic manufacturing is declining. In the rural South, the challenge is to upgrade the industrial and occupational structures that currently exist. Policies designed to improve skill levels of rural workers are likely to have their greatest impact when targeted to the rural South. The rural West seems to require very little policy initiative, as market forces seem to be creating favorable performance on both dimensions among its manufacturing industries.

Finally, rural manufacturing has performed quite differently for men and women. To the extent that gender equality is a policy goal, policies need to address the sexual division of labor in rural manufacturing industries. Achievement of this goal would seem to require a twofold approach. On the one hand, women need to have greater access to the skilled jobs within the rural manufacturing sector. This would contribute to greater equality in working conditions as well as in earnings levels. On the other hand, the fact that women within the same occupation as men generally earn less suggests a need for greater equality in the returns that men and women receive for their skills.

References

1. Alderfer, E. B., and H. E. Michl. Economics of American Industry. New York: McGraw Hill, 1942.

2. Bluestone, Barry, and Bennett Harrison. The Deindustrialization of America: Plant Closings, Community Abandonment, and the Dismantling of Basic Industry. New York: Basic Books, 1982.

3. Clark, Gordon. "The Employment Relationship and the Spatial Division of Labor: A Hypothesis." Annals of the Association of American Geographers, vol. 17, Sept. 1981, pp. 412-424.

4. Dornbusch, Rudiger, and Stanley Fischer. Macroeconomics. Third edition. New York: McGraw-Hill, 1984.

5. Drucker, Peter. "The Changed World Economy." Foreign Affairs, Spring 1986, pp. 768-791.

6. Gilmer, Robert W., and Allan G. Pulsipher. "Cyclical and Structural Change in Southern Manufacturing: Recent Evidence From the Tennessee Valley: Note." Growth and Change, vol. 17, Oct. 1986, pp. 61-69.

7. Glasmeier, Amy K. "High-Tech Industries and the Regional Division of Labor." Industrial Relations, vol. 25, Spring 1986, pp. 197-211.

8. Hansen, Niles. "The New International Division of Labor and Manufacturing Decentralization in the United States." Review of Regional Studies, vol. 9, Spring 1979, pp. 1-11.

9. Haren, Claude C., and Ronald W. Holling. "Industrial Development in Nonmetropolitan America: A Locational Perspective." In Nonmetropolitan Industrialization, eds. R. E. Lonsdale and H. L. Seyler, pp. 13-45. New York: John Wiley and Sons, 1979.

10. Horan, Patrick M., and Molly Sizer Killian. "Labor Market Types and the Social Division of Labor." In The Organization of Work in Rural and Urban Labor Markets, by Patrick M. Horan and Charles M. Tolbert II, pp. 107-135. Boulder, CO: Westview Press, 1984.

11. Hufbauer, G. C., and J. G. Chilas. "Specialization by Industrial Countries: Extent and Consequences." In The International Division of Labor: Problems and Prospects, ed. H. G. Giersch, pp. 35-38. Tubingen, Germany: J. C. B. Mohr, 1974.

12. Kale, Steven R., and Richard E. Lonsdale. "Factors Encouraging and Discouraging Plant Location in Nonmetropolitan Areas." In Nonmetropolitan Industrialization, eds. R. E. Lonsdale and H. L. Seyler, pp. 47-56. New York: John Wiley and Sons, 1979.

13. Maskus, K. E. The Changing Structure of Comparative Advantage in American Manufacturing. Ann Arbor: UMI Research Press, 1983.

14. McGranahan, David. "Rural Areas in the National Economy: Are Spatial Policies Justified?" Chapter 2, in this volume, 1987.

15. Miller, James, and Herman Bluestone. "The Performance of the Rural Services Sector." Chapter 5, in this volume, 1987.

16. Montagna, Paul D. Occupations in Society: Toward a Sociology of the Labor Market. New York: John Wiley and Sons, 1977.

17. Norton, R. D., and J. Rees. "The Product Cycle and the Spatial Decentralization of American Manufacturing." Regional Studies, vol. 13, 1979, pp. 141-151.

18. Personick, Valerie. "A Second Look at Industry Output and Employment Trends Through 1995." Monthly Labor Review, vol. 58, Nov. 1985, pp. 26-41.

19. Rones, Philip L. "Moving to the Sun: Regional Job Growth, 1968 to 1978." Monthly Labor Review, vol. 103, Mar. 1980, pp. 12-19.

20. Summers, Gene F., Sharon D. Evans, Frank Clemente, E. M. Beck, and Jon Minkoff. Industrial Invasion of Nonmetropolitan America: A Quarter Century of Experience. New York: Praeger Publishers, 1976.

21. Thompson, Wilbur. A Preface to Urban Economics. Baltimore: Johns Hopkins University Press, 1965.

22. "Rude Awakenings: The Challenge of the Global Economy." Six-part series. The Washington Post, April 12-17, 1987.

Table 1—Classification of manufacturing industries 1/

SIC	Type of industry
	Top-of-cycle:
27	Printing, publishing and allied industries
28	Chemicals and allied products
35	Machinery, except electrical
36	Electrical machinery
37(x) 2/	Transportation equipment, except motor vehicles
38	Instrument and related products
	Bottom-of-cycle:
22	Textile mill products
23	Apparel, other textile products
25	Furniture and fixtures
37	Rubber and miscellaneous plastics products
31	Leather and leather products
32 2/	Stone, clay, glass and concrete products
33 2/	Primary metal industries
34	Fabricated metal products, except machinery
371	Motor vehicle transportation equipment
39	Miscellaneous manufacturing industries
	Resource-based:
27	Food and kindred products
21	Tobacco manufactures
24	Lumber and wood products, except furniture
26 2/	Paper and allied products
29	Petroleum refining and related industries

1/ The classification is based on Maskus' (14) specification of Hufbauer and Chilas' model for American manufacturing industries. The original model was developed for an analysis of European industries.

2/ 2-digit SIC industries assigned arbitrarily, based employment distributions among 3-digit industries within the broader category.

Table 2--Employment in metro and nometro areas, for selected years.

Type of industry	Metro	Nonmetro	Proportion of nonmetro employment
	- Number -		Percent
Wage and salary:			
1969	63,656,262	14,739,738	18.8
1979	77,610,904	18,720,096	19.4
1984	82,246,274	18,854,726	18.6
Manufacturing:			
1969	16,420,426	3,849,574	19.0
1979	16,579,980	4,432,928	21.1
1984	15,190,113	4,220,887	21.7
Top:			
1969	6,877,049	1,003,951	12.7
1979	7,484,621	1,274,379	14.5
1984	7,416,222	1,181,778	13.7
Bottom:			
1969	6,858,219	1,818,781	21.0
1979	6,735,580	2,113,420	23.9
1984	5,606,734	1,958,266	25.9
Resource:			
1969	2,410,606	985,394	29.0
1979	2,359,779	1,132,221	32.4
1984	2,167,157	1,080,843	33.3

Source: Bureau of Economic Analysis Employment Tapes.

Table 3—Men's and women's occupations in rural manufacturing industries

Men—

Occupation	Northeast			Midwest		
	Top	Bottom	Resource	Top	Bottom	Resource
	Percent					
Managers	5.4	10.6	3.4	7.4	5.0	7.5
Professionals	18.6	3.4	1.4	10.8	3.4	0.7
Sales and clericals	9.3	4.6	10.1	14.0	6.3	6.3
Craft	29.6	15.4	30.3	26.0	22.9	10.3
Operatives	31.9	49.8	31.4	35.0	47.7	37.6
Laborers and service	5.2	16.3	23.4	6.8	14.8	16.6
Total	143,665	166,183	69,614	357,109	499,860	267,913

Occupation	South			West		
	Top	Bottom	Resource	Top	Bottom	Resource
	Percent					
Managers	5.8	4.5	2.7	13.6	19.1	2.4
Professionals	12.2	6.2	2.9	17.1	5.1	2.6
Sales and clericals	8.6	5.1	4.7	6.2	2.9	0.4
Craft	29.6	22.0	30.6	39.4	14.4	24.5
Operatives	35.1	47.0	43.0	19.1	46.8	49.1
Laborers and service	8.8	15.2	15.9	4.5	11.7	20.9
Total	371,119	593,962	432,529	54,460	41,236	128,300

— Continued

Table 3—Men's and women's occupations in rural manufacturing industries--continued

Women—

Occupation	Northeast			Midwest		
	Top	Bottom	Resource	Top	Bottom	Resource
	Percent					
Managers	9.0	5.1	17.8	6.4	0.8	3.9
Professionals	5.3	3.1	2.1	5.2	3.7	3.3
Sales and clericals	34.2	20.6	17.7	35.0	12.5	20.1
Craft	15.5	4.7	2.4	20.6	8.6	10.2
Operatives	30.7	62.6	32.5	29.5	67.7	41.4
Laborers and service	5.3	3.9	27.6	3.3	6.7	21.1
Total	69,765	91,735	29,220	190,608	268,550	102,301

Occupation	South			West		
	Top	Bottom	Resource	Top	Bottom	Resource
	Percent					
Managers	1.2	0.6	2.9	4.1	12.3	1.6
Professionals	8.6	1.6	2.3	4.6	4.2	3.2
Sales and clericals	23.9	8.9	21.5	53.4	16.7	25.5
Craft	17.6	5.1	20.8	27.1	6.7	1.2
Operatives	38.9	80.7	25.0	10.7	52.3	50.4
Laborers and service	9.8	3.1	27.4	0.0	7.7	18.1
Total	189,124	572,498	140,167	28,941	20,594	57,568

Source: 1986 Current Population Survey.

Table 4--Average earnings of full-time rural manufacturing workers, 1986

Type of industry and sex	Northeast	Midwest	South	West
		Dollars		
Men:				
Top	22,737	24,533	22,855	25,855
Bottom	19,857	22,642	17,142	20,925
Resource	23,138	21,605	20,865	22,475
Women:				
Top	17,649	14,508	14,149	13,113
Bottom	13,218	12,714	10,108	10,197
Resource	14,890	14,161	12,079	13,692

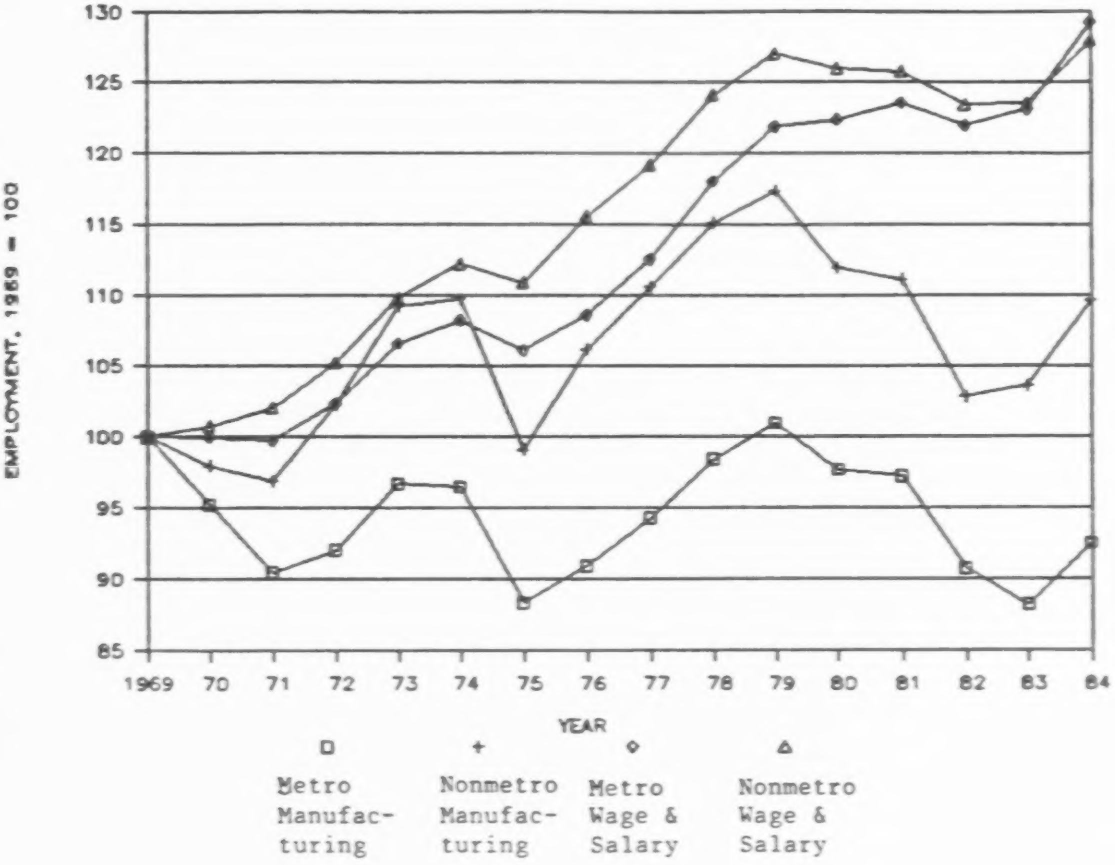
Source: 1986 Current Population Survey.

Table 5--Average earnings of full-time occupations in rural manufacturing industries, 1986

Type of occupation and sex	Northeast	Midwest	South	West
	Dollars			
Men:				
Managers	34,794	35,668	32,556	30,048
Professionals	32,289	31,868	28,426	26,670
Sales and Clericals	20,620	24,870	22,083	23,388
Crafts	22,627	23,533	21,841	26,635
Operatives	16,716	19,607	17,004	21,021
Laborers and Service	18,812	16,971	13,281	14,813
Women:				
Managers	16,684	13,525	15,864	19,356
Professionals	21,051	15,140	19,205	12,249
Sales and Clericals	11,622	15,316	12,985	13,641
Crafts	14,832	14,056	14,452	12,329
Operatives	17,458	12,788	9,846	12,060
Laborers and Service	13,218	11,841	10,291	12,134

Source: 1986 Current Population Survey.

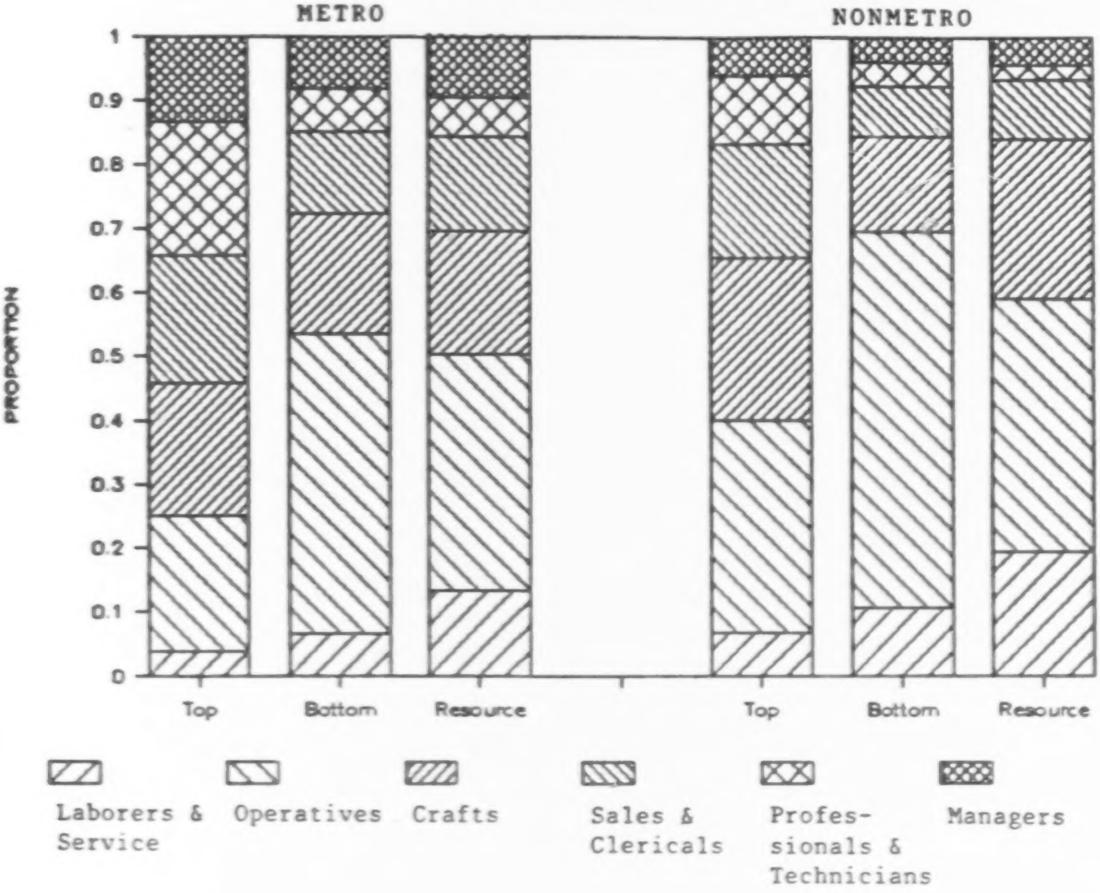
FIGURE 1
EMPLOYMENT IN METRO AND NONMETRO AREAS



SOURCE: Bureau of Economic Analysis Employment Tapes.

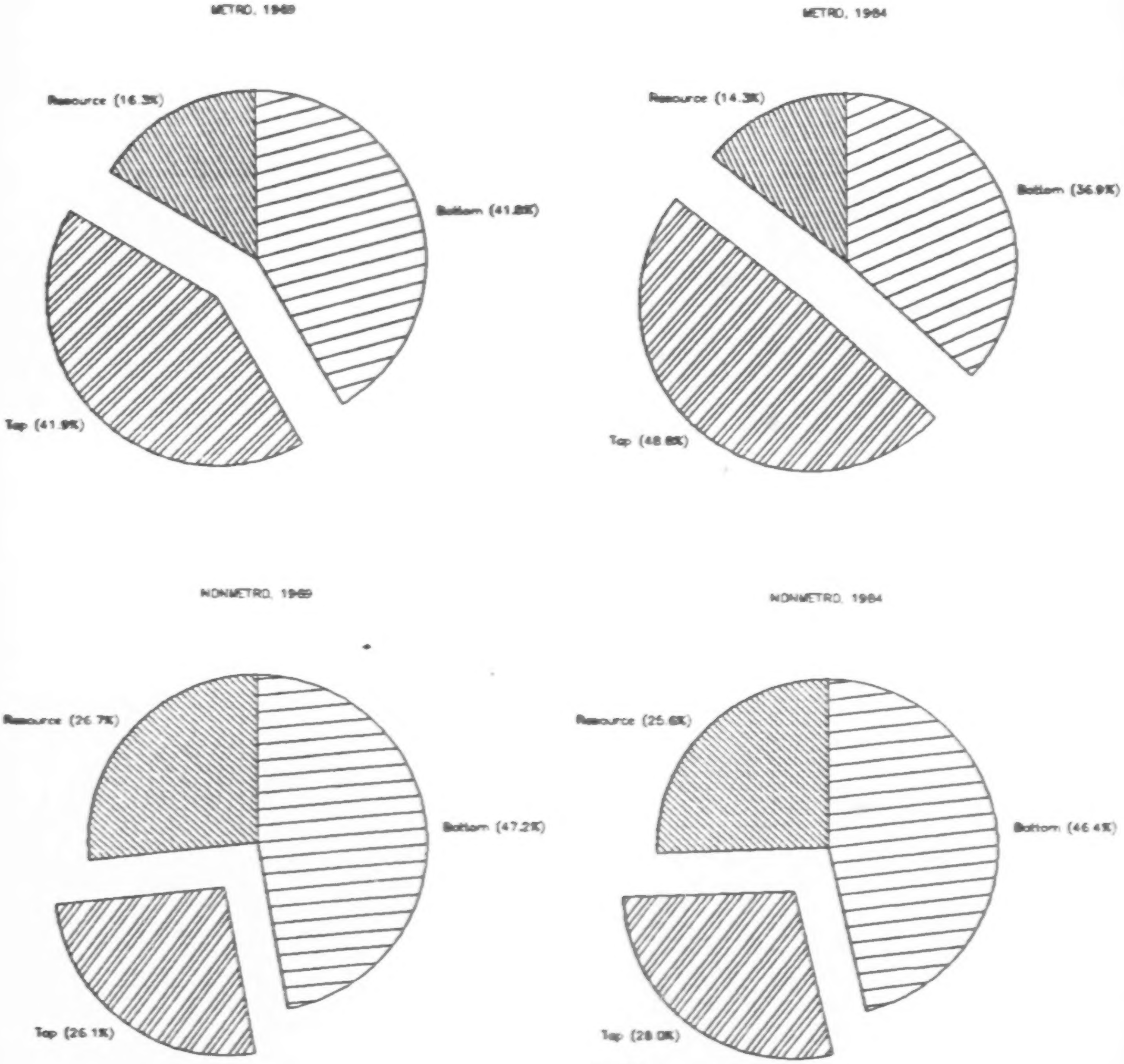
FIGURE 2

OCCUPATIONS IN MANUFACTURING INDUSTRIES METRO AND NONMETRO AREAS



SOURCE: 1986 Current Population Survey.

FIGURE 3.
TYPES OF MANUFACTURING EMPLOYMENT IN METRO AND NONMETRO AREAS



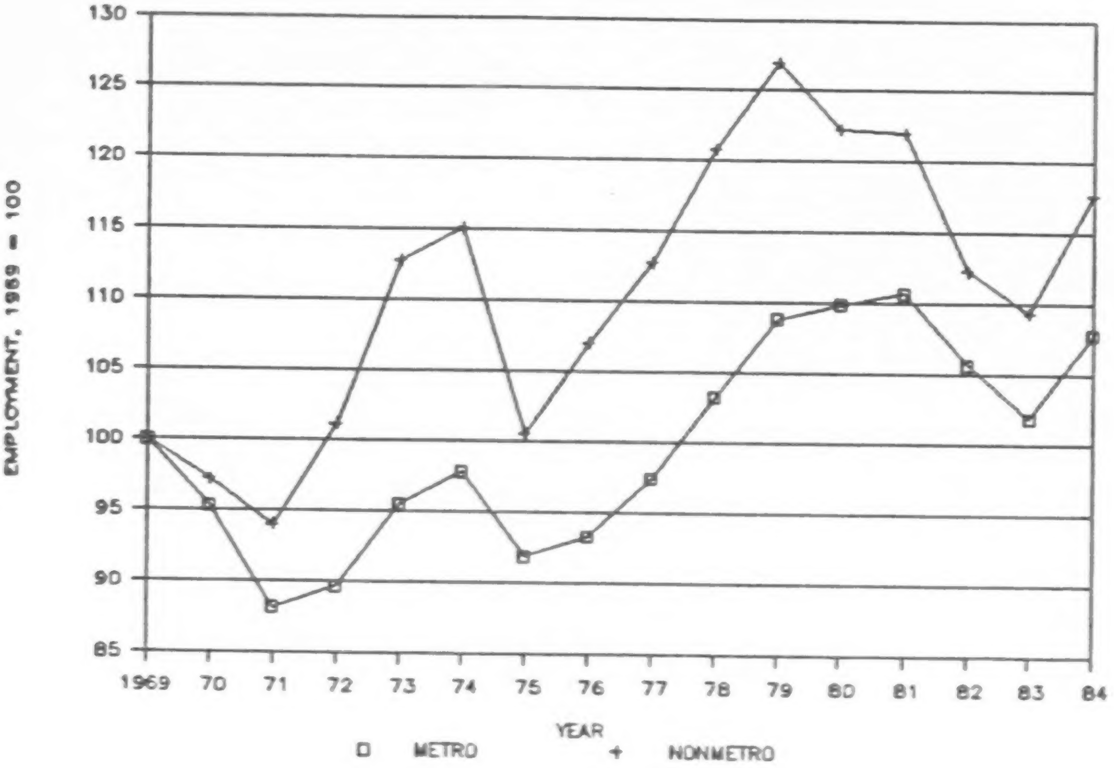
METRO, 1969

METRO, 1984

NONMETRO, 1969

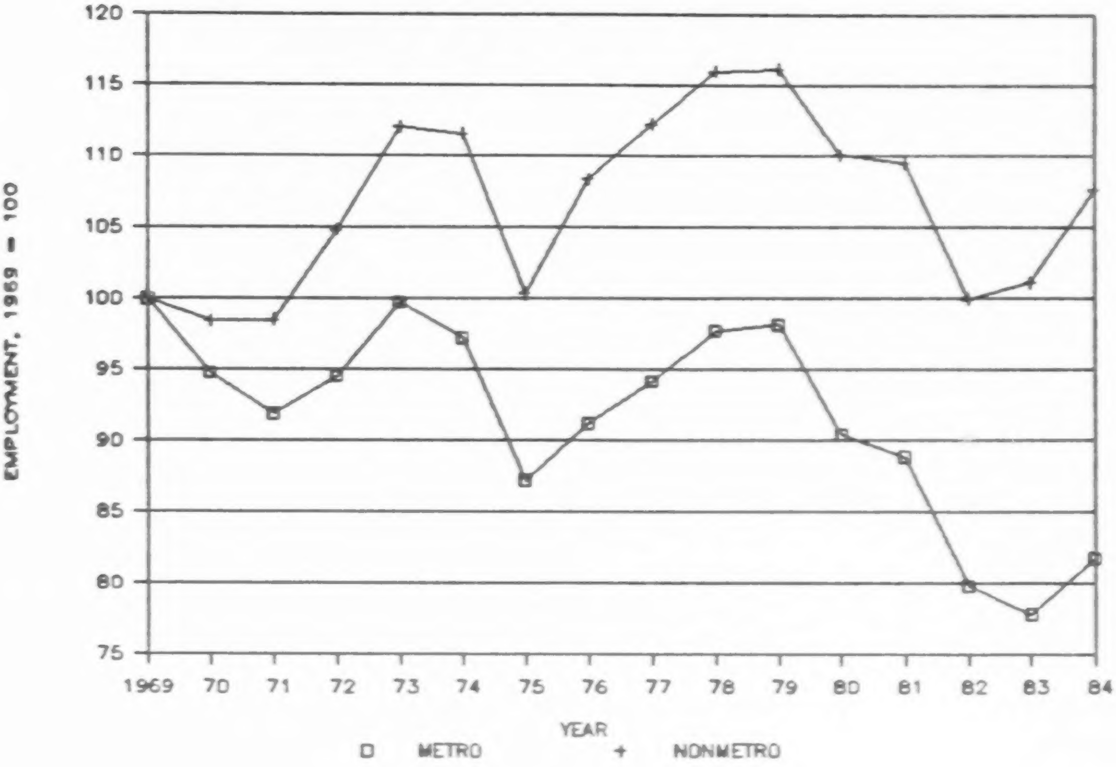
NONMETRO, 1984

FIGURE 4A.
"TOP-OF-CYCLE" MANUFACTURING IN METRO AND NONMETRO AREAS



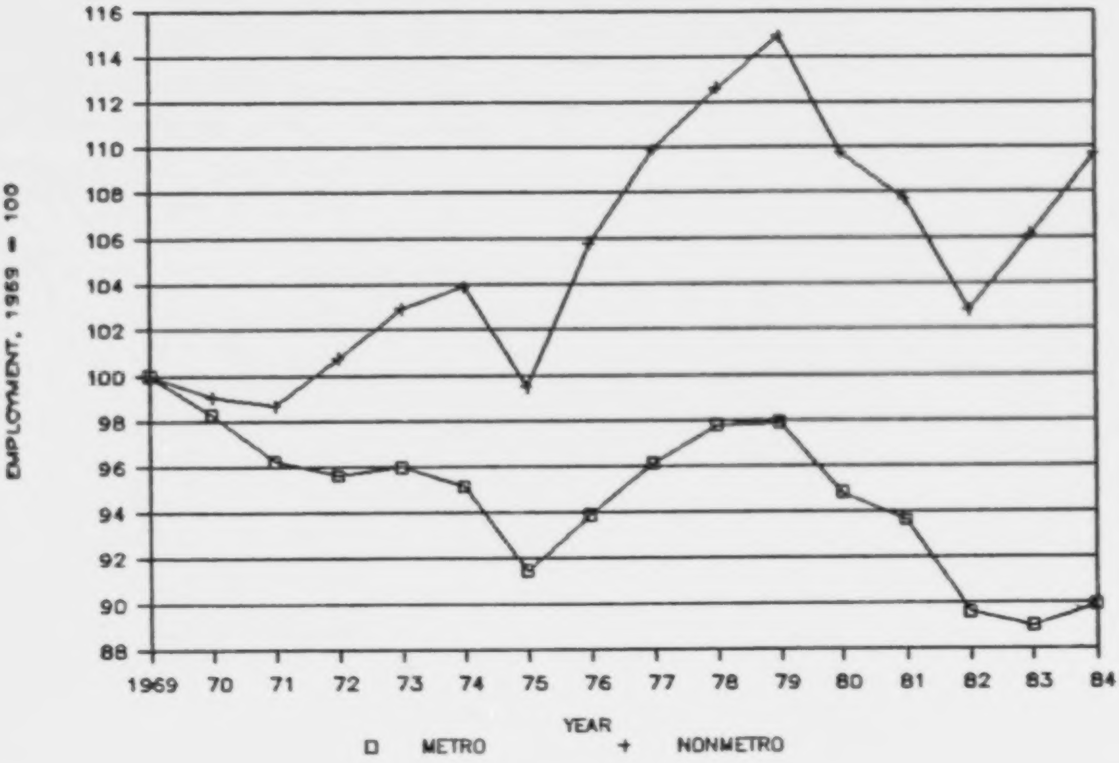
SOURCE: Bureau of Economic Analysis Employment Tapes.

FIGURE 4B.
"BOTTOM-OF-CYCLE" MANUFACTURING IN METRO AND NONMETRO AREAS



SOURCE: Bureau of Economic Analysis Employment Tapes.

FIGURE 4C.
"RESOURCE-BASED" MANUFACTURING IN METRO AND NONMETRO AREAS



SOURCE: Bureau of Economic Analysis Employment Tapes.

FIGURE 5:
TYPES OF MANUFACTURING EMPLOYMENT IN NONMETRO REGIONS

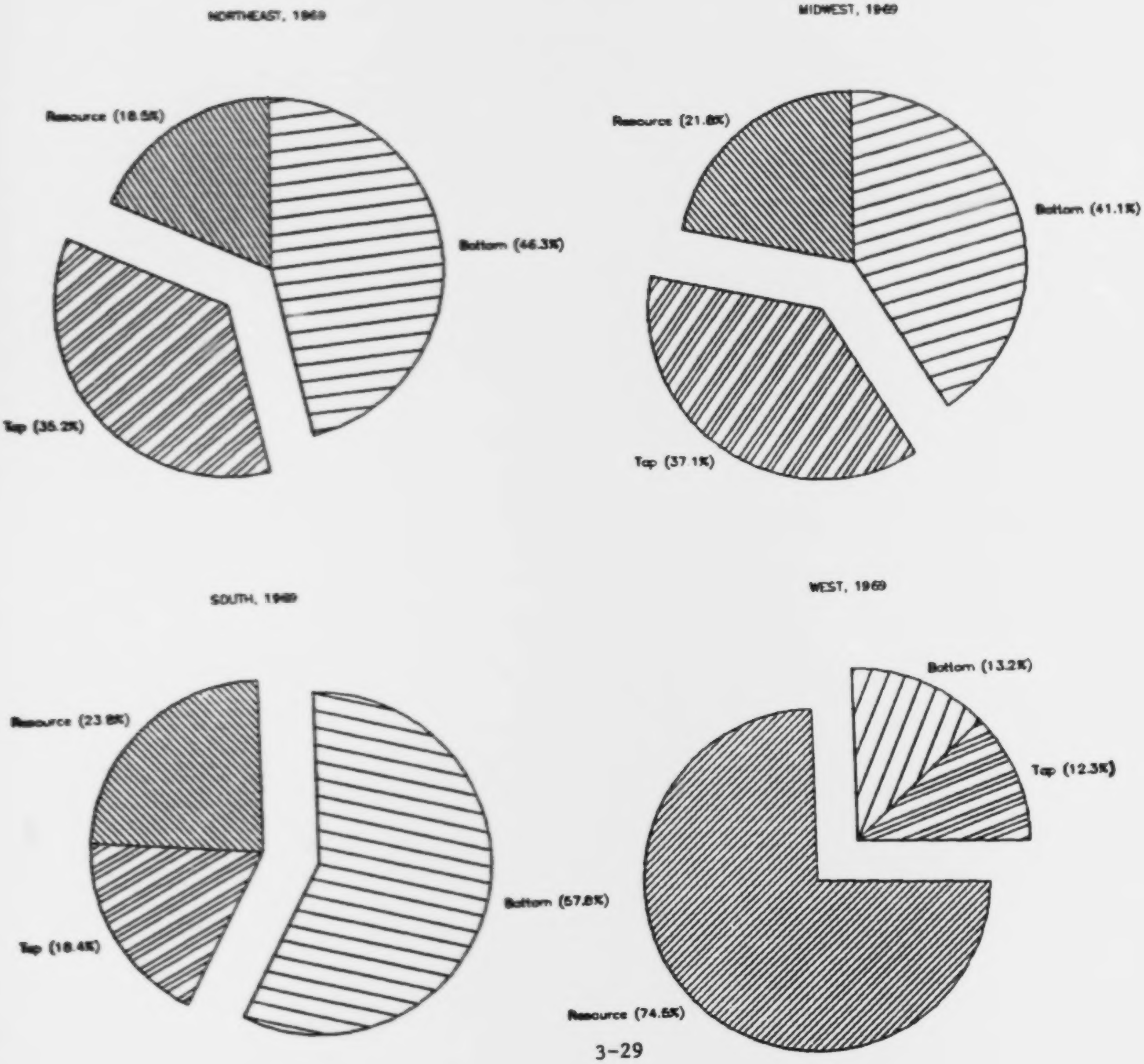
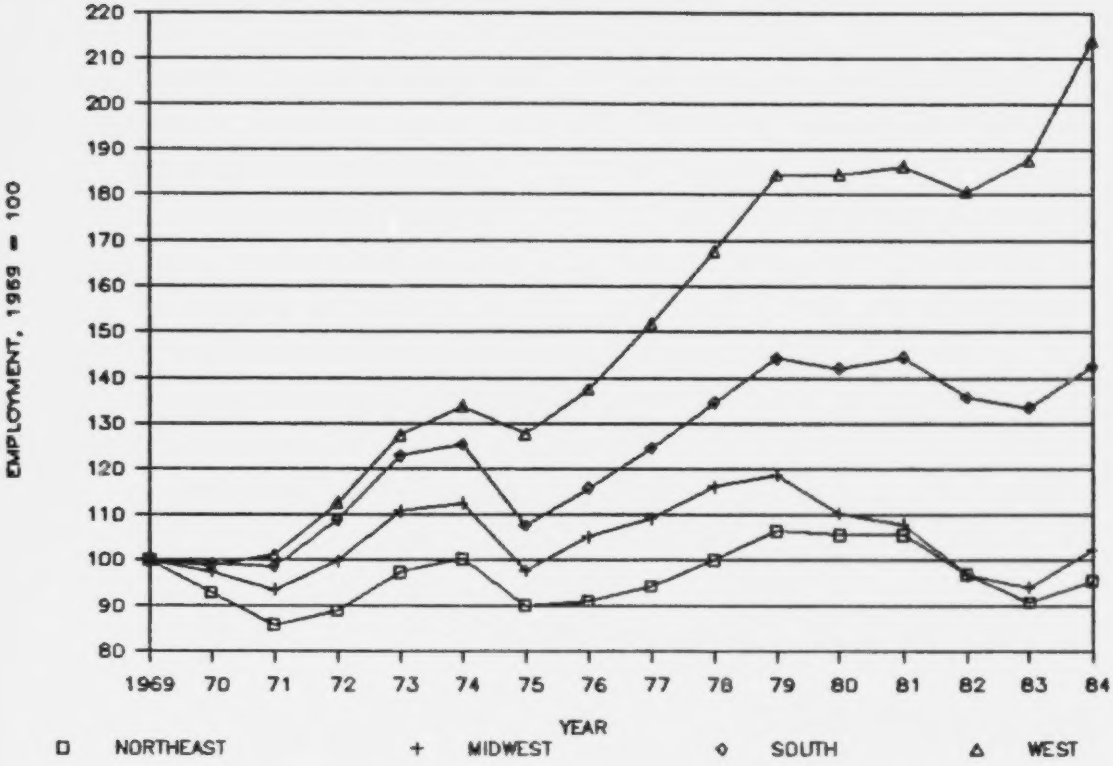
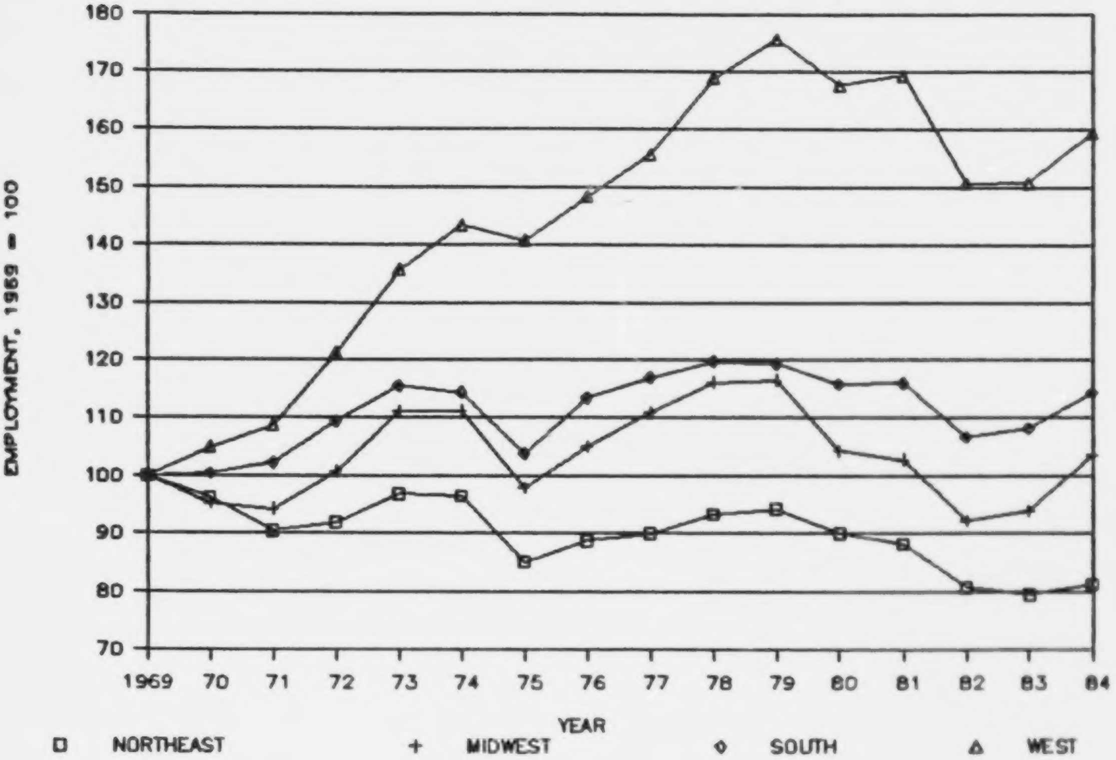


FIGURE 6A.
"TOP-OF-CYCLE" MANUFACTURING IN NONMETRO REGIONS



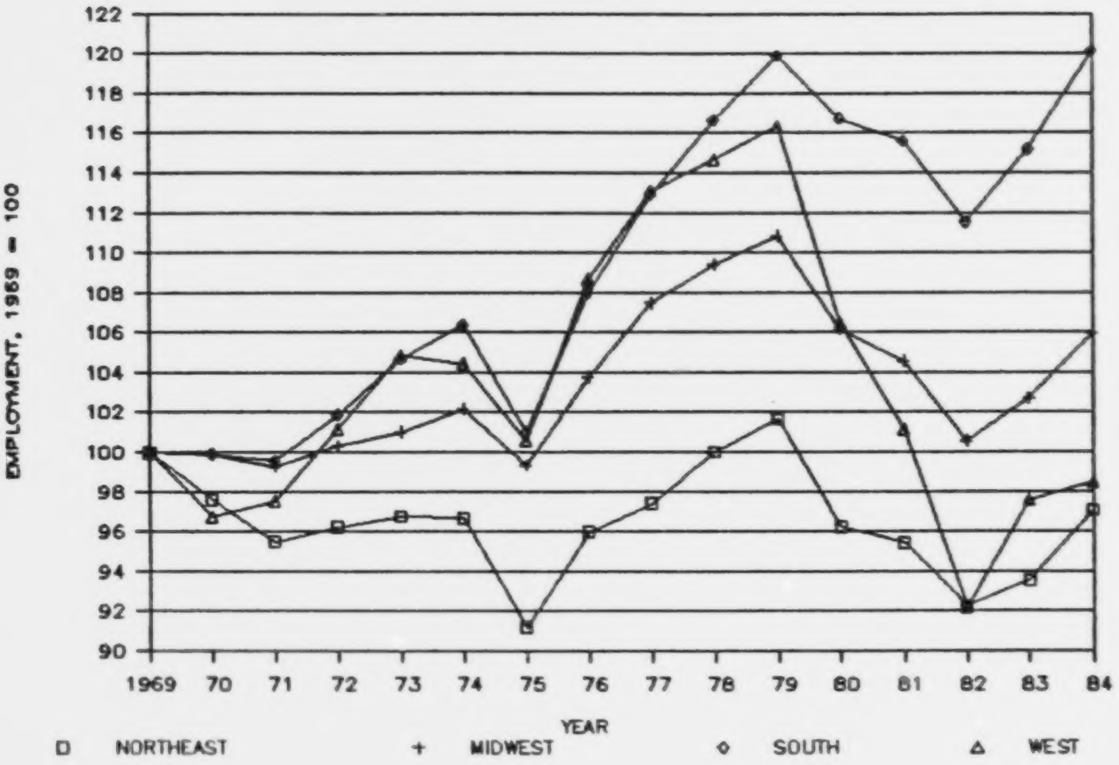
SOURCE: Bureau of Economic Analysis Employment Tapes.

FIGURE 6B.
"BOTTOM-OF-CYCLE" MANUFACTURING IN NONMETRO REGIONS



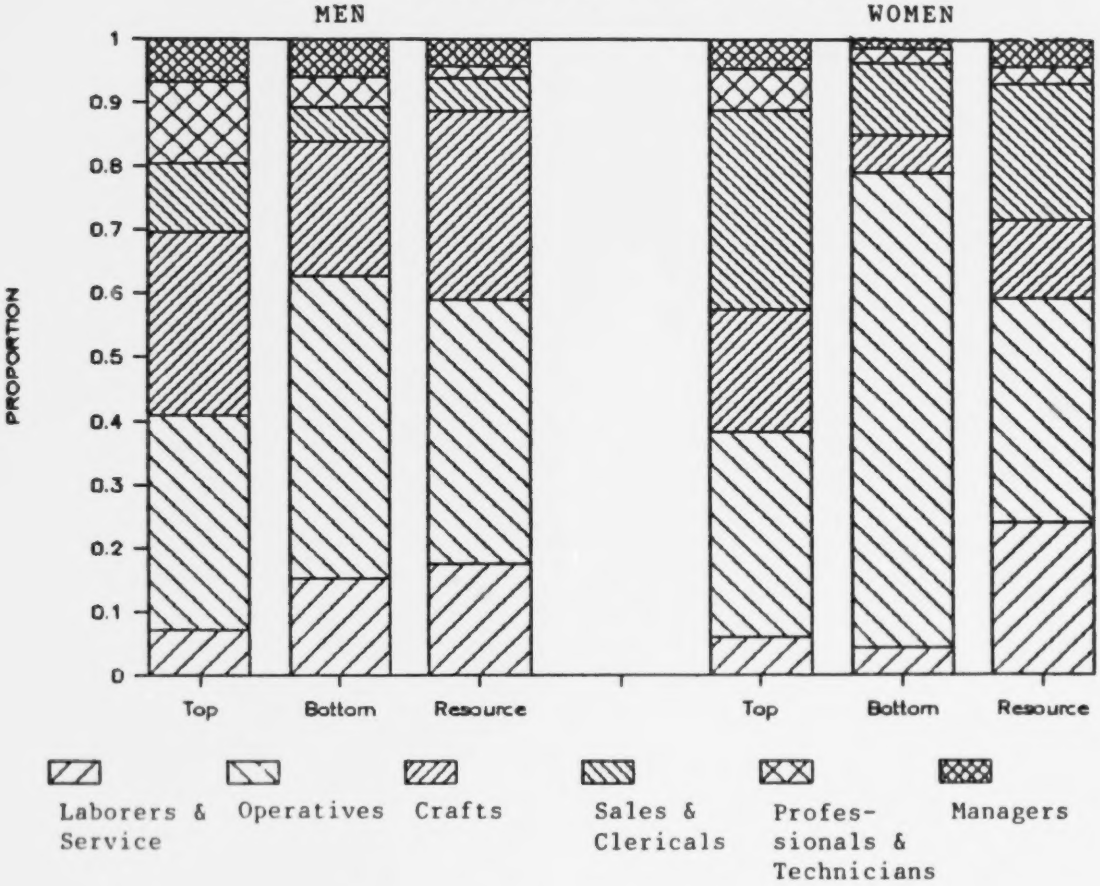
SOURCE: Bureau of Economic Analysis Employment Tapes.

FIGURE 6C.
"RESOURCE-BASED" MANUFACTURING IN NONMETRO REGIONS



SOURCE: Bureau of Economic Analysis Employment Tapes.

FIGURE 7.
OCCUPATIONS IN MANUFACTURING INDUSTRIES NONMETRO MEN AND WOMEN



SOURCE: 1986 Current Population Survey.

CHAPTER 4

PERFORMANCE OF THE AGRICULTURAL SECTOR

Donn Reimund and Mindy Petrulis

Abstract. Macro and international economic conditions, farm programs, and technological innovation have been the major external forces affecting the performance of the agricultural sector over the past few decades, contributing to increased output and reduced employment levels. Prior to 1981, a major portion of the increased output was absorbed by expanding export markets. Since 1981, changing macroeconomic and international environments have led to falling exports, which in turn has been a principal contributor to the farm and rural financial crisis of the 1980's. Continued productivity increases in both the farm and off-farm agricultural industries indicate that the sector will not contribute to rural employment growth in the forseeable future.

The U.S. agricultural sector has undergone a dramatic transformation in a single generation. U.S. farms became the world's most productive, U.S. consumers came to spend the lowest proportion of disposable income for food of any industrialized nation, and exports of agricultural products became America's largest single source of foreign exchange earnings. But the transformation of agriculture also changed the nature of U.S farming and the character of rural America. Nearly four-fifths of the farm population left farming between 1940 and 1980, one of the largest voluntary migrations in history. Farm numbers fell to a third of their mid-1930's peak, average farm size nearly tripled, and farms became more specialized and industrialized. As U.S. farming has become more industrialized, the production, marketing, and financial structure of agriculture have become increasingly interdependent. No longer is farming insulated from developments in the rest of the Nation and the world. Farming is a complex business, highly dependent on and linked to supporting input supply industries, food and fiber processors, distributors, retailers, and domestic consumers and international trade. The agricultural sector currently accounts for 17.5 percent of GNP and 18.5 percent of civilian employment (2).1/

This chapter examines the performance of the agricultural sector both at the farm and nonfarm agribusiness levels. The chapter begins with a brief discussion of the roles played by macro and international economic conditions, farm programs, and technology in shaping the structure and performance of the sector. This is followed by sections analyzing recent developments in the structure and performance at the farm and nonfarm levels. Changes in employment levels, the causes of these changes, and the potential of the agricultural sector as a source of future rural employment are emphasized.

Donn Reimund is an agricultural economist in the Agricultural and Rural Economy Division, ERS. Mindy Petrulis is an economist in the same division.

1/ Underscored numbers in parentheses refers to sources listed in the References section at the end of the chapter.

Macroeconomic and International Environment

The impact of macroeconomic policy and the growing reliance of U.S. agriculture on the world economy has been most dramatic in the past decade. Throughout the 1970's, there was a rapid expansion of U.S. agricultural capacity as farmers took advantage of accelerating inflation and very low to negative real interest rates (the nominal interest rate minus the inflation rate). The value of the dollar was also generally low, making American products relatively cheap, and the value of agricultural exports expanded more than fivefold during the period.

Farmers responded to these favorable conditions by borrowing heavily to invest in new capital equipment, new production techniques, and increasingly expensive farmland. In this environment of rapid expansion, farm productivity continued to accelerate, U.S. agricultural production surged, and agribusinesses and farm-based communities and regions prospered.

By the early 1980's, the factors that had given rise to economic expansion of the 1970's had reversed direction. Worldwide recession and the rise in the value of the dollar reduced the export demand for U.S. products. At the same time, relatively high loan rates for U.S. farm commodities, which set a floor under domestic prices of government supported farm commodities, provided incentives to other countries to substantially increase their grain supply. By 1984, these factors combined to sharply lower farm commodity prices, reduce farm income, and cut U.S. farm exports by 13 percent from their 1981 peak. On the cost side, farmers were hurt as inflation was slowed by stringent monetary controls, real interest rates rose to unprecedented levels of 8 to 10 percent, and prices paid by farmers began to exceed the prices they received.

With the passage of the Food Security Act of 1985, farm commodity prices have not risen, but commodity exports have started to increase, and land values have started to stabilize. Although recovery is underway, it is improbable that the farm economy will recover to the unprecedented levels of the mid-1970's through 1981 period in the near future. The adjustments that have occurred since 1981 have brought the farm sector, particularly land values, to levels more in line with historic trends. Although there are indications that land values are stabilizing at more sustainable levels, employment losses have continued in the farm sector, agricultural input industries, and agricultural processing and marketing industries. Moreover, economic revival in the farm-dependent States and regions has been slowed by the sluggish recovery of other industries, especially manufacturing, from the 1980 and 1981-82 recessions. Slow growth in nonfarm industries has made it difficult for farmers who rely on the nonfarm economy to supplement their farm income, and at the same time, has prevented workers displaced from farming and farm-related business from finding other jobs.

Federal Farm Programs and Policies

The Food Security Act of 1985 supports prices for wheat, feed grains, cotton, and rice through nonrecourse loans. Income support is provided through target prices and deficiency payments. Supply control is achieved through acreage reduction programs that include land set-aside and paid land diversion programs. Farmers must participate in the acreage reduction programs to be eligible for price and income supports. A principal objective of the 1985 legislation is to improve the competitive position of U.S. agricultural exports. This is accomplished by setting commodity loan rates at levels that reflect world prices.

Federal farm programs, particularly the commodity price support and supply control programs in existence since the 1930's, affect the structure and performance of the agricultural sector in at least two important ways. First, the price and income stabilization provisions reduce farmers' price risks by shifting them to the taxpayers (government). This encourages farmers to undertake financial risks for farm expansion and capital investment that they might otherwise be reluctant to do. Second, the supply control provisions (specifically acreage reduction programs), by restricting a specific factor of production, have caused farmers to alter their input mix in a manner that has dramatically increased per-acre yields of program crops.

Because the level of benefits received from commodity programs is directly related to volume of output, the programs favor large farms and encourage farm enlargement. In this context, the programs have led to the growth of farm size. Commodity programs have contributed to increased crop yields, since farmers take their poorest land out of production to comply with acreage control provisions. The price support provisions truncate farmers' downside price risk and provide an incentive to adopt yield-increasing production practices. The incentive to increase yields was addressed by the 1985 Farm Bill as program payment yields were allowed to be frozen and loan rates were allowed to be reduced so they did not interfere with the market.

Technology

Technological innovations in agriculture over the past few decades fall into two basic classes-- those that raise yields, and those that reduce labor. Yield-increasing innovations include improved, higher yielding crop varieties and improved livestock and poultry strains with faster growth rates or better feed conversion ratios. Labor-reducing innovations involve substituting mechanical power or chemicals for labor, and include improved and larger machinery, mechanized harvesting of several crops, mechanized or automated livestock- and poultry-feeding systems, and chemical herbicides that reduce the labor required to control weeds and pests. These technological innovations greatly affected the organization and performance of the farm sector, reducing costs, and increasing output and farm size. This has allowed fewer farms to produce a larger output at lower real costs now than was possible a few years ago.

Technological innovation will continue to play a leading role in shaping the structure and performance of the food and fiber system. At the farm level, however, biotechnological innovations will be emphasized. Biotechnology related to animal agriculture is further advanced than that related to crop agriculture. Such applications as bovine growth hormone and embryo transfer in cattle are in the early stages of commercial introduction. The most immediate application of these technologies will be in dairy production, where they have the potential for increasing productivity by as much as 20 percent or more (3). This will have a major effect on the structure and performance of this industry. The likely result could be a dramatic reduction in the number of dairy cows and dairy farms, primarily concentrated among small and moderate sized dairy farms.

Farm Structure and Performance

Technology, government programs, and macroeconomic conditions have combined to cause dramatic changes in the structure and performance of the farm sector since 1950. This section looks at the magnitude of these changes, how they came about, and the possible future direction of farm structure and performance.

Farm Structure

The declines in the number of farms from 5.65 million in 1950 to 2.21 million in 1986 and the accompanying increase in average farm size from 213 acres in 1950 to 455 acres in 1986 are the most visible farm sector structural changes (table 1--see tables at end of chapter).

Labor-reducing technology, including mechanization and higher capacity machinery, along with chemical herbicides and pesticides, was a major force contributing to the change in farm structure during 1950-86. These innovations provided a strong incentive for farm expansion by increasing the amount of land operable by an individual farmer. Also, the larger, high-capacity machinery being introduced could not be operated profitably on small acreages, but did decrease per unit production costs when used on larger farms. Federal farm programs, at least those for program commodities, facilitated farm size growth by providing price stability, thereby reducing the financial risks faced by farmers incurring capital expenditures for farm expansion.

An immediate result of the growth in farm size has been increased concentration of output on larger farms. By 1982, according to the latest Census of Agriculture, the 1.2 percent of farms with gross sales of $500,000 or more accounted for nearly a third of the total sales of agricultural commodities. The percentage distribution of product sales for 1959 and 1982 shows a substantial shift of product sales toward the larger end of the farm size distribution between the 2 years, even though product sales were already fairly concentrated in 1959 (fig. 1--see figures at end of chapter). The Gini index, which measures concentration, increased from 0.663 in 1959 to 0.773 in 1982.2/

2/ A higher value of the Gini index, which has a range from 0.0 (uniform distribution of sales across all farms) to 1.0, indicates an increased level of concentration.

Farm Sector Productivity

The relationship between total output and total input is an important measure of farm sector performance. The index of total output from the farm sector nearly doubled between 1950 and 1984, while the index of total input was stable. The result was a near doubling of overall productivity in the farm sector (fig. 2). The principal factor underlying this growth in productivity was technological change. Mechanization, higher capacity machinery, and irrigation all enhanced the productivity of land and labor, encouraged the substitution of capital for labor, and led to a large migration from agriculture.

Farm labor productivity increased dramatically during 1950-84, while labor input fell just as dramatically (fig. 3). The falling labor requirement was spread across all types of agriculture although not evenly. The labor hours required to produce a bale of cotton, for example, fell from 74 in 1955-59 to 5 in 1980-84, a decline of 93 percent, while the labor required to produce 100 bushels of soybeans fell 48 percent from 23 hours to 12 (table 2). Land productivity also increased, as yields for most major crops rose. The largest yield increases were registered by feed grain crops (table 3).

Although both total land in farms and harvested cropland were relatively stable from 1950 through the early 1980's, the increasing productivity of land resulted in substantial increases in total crop output. Growth in total domestic consumption was primarily related to population growth. U.S. population increased by 56 percent from 152 million in 1950 to 237 million in 1984, but the acres of harvested cropland needed to meet domestic needs fell from 295 million to 237 million acres (fig. 4). Expanding exports absorbed a substantial amount of the increasing production prior to 1980. Cropland used for producing export products increased from 50 million acres in 1950 to 137 million in 1980, and was 111 million in 1984. Nearly one of every three harvested acres was devoted to producing crops for export in 1984, compared to about one of seven in 1950.

The level of farm product exports declined during the first half of the 1980's, however, largely as a result of increased world production, unfavorable exchange rates, and worldwide economic recession. These international economic conditions have contributed to the U.S. farm financial crisis of the early and mid-1980's.

Farm Operator Income

Farm operator income is another important indicator of farm sector performance. Two aspects of this income are relevant: (1) the relationship between farm operator income and income of the nonfarm population, which measures how well farm operators are doing relative to nonfarm workers, and (2) the distribution of income within the farm sector.

In aggregate, farm operator family income from all sources has compared favorably with the median income of all families (table 4). However, throughout the 1970's and into the mid 1980's, well over half of farm family income was derived from off-farm sources. Consequently, the availability of off-farm employment or other sources of income is very important to the total income of many farmers. If the average farm family had to rely solely on farm income through most of the 1970's and 1980's, their total income would have been less than half the median income for all U.S. families.

Since the 1960's, farm-generated income has shifted toward the larger end of the farm size distribution. In 1965, farms with gross sales of $100,000 or more accounted for slightly over 1 percent of all farms and received 10 percent of net farm income. In the 1980's, farms with gross sales of $500,000 or more accounted for slightly over 1 percent of all farms, but received from 55-60 percent of total net farm income (table 5). Furthermore, farms with gross sales of less than $40,000 have, in aggregate, had negative net farm income during the 1980's.

When off-farm income is taken into consideration, total farm operator income is more evenly distributed, although it is still highly skewed toward the larger farm size (table 6). Sales classes above $100,000 gross sales have had average total family income well above the median income of all families since the mid-1960's. However, average total family incomes of smaller sized commercial farms ($40,000-$99,999 gross sales) have fallen well below the median in the 1980's, due to lower net farm incomes. Operators of small noncommercial farms (less than $40,000 gross sales), although encountering consistent negative net farm incomes through the 1980's, have improved their average total incomes relative to the median income, as a result of improving levels of off-farm income.

Although, average total farm income in aggregate has compared favorably with the median family income level, only farm families on the largest farms with $100,000 or more gross sales have equaled or exceeded the median family income level in recent years. Farms in these sales classes currently constitute less than 15 percent of all farms.

Farm Sector Employment

The technological and other changes since 1950 have severely affected the level of farm sector employment. Nearly 10 million workers, including both family and hired workers, were employed in the farm sector in 1950 (table 7). By 1980, this number had dropped to 3.7 million. Family workers (farm operators and unpaid family members) accounted for most of this decline. The number of family workers on farms fell by 5.2 million, accounting for 84 percent of the total decline. The number of hired workers declined from 2.3 million in 1950 to 1.3 million in 1980. This loss in farm employment, particularly among farm operators and their family members, was a principal reason why rural population growth rates lagged behind those of urban areas from the 1950's through the early 1970's.

There is nothing on the horizon to indicate any near-term turnaround in farm employment trends. Continuing adoption of currently available labor-reducing technology points toward further drops in farm numbers and employment. Over a longer period, the infusion of emerging biological, information, and mechanical technologies may accelerate the decline in farm numbers. The Office of Technology Assessment projects a significantly higher adoption rate of these technologies by the largest farms compared with smaller farms (3). This would cause a further deterioration in the competitive position of smaller farms, hasten their decline, and reduce the numbers of operators and family members employed on farms.

Recent Financial Situation

The material well-being of farm families can be measured by both their family incomes and equity or net worth in their farms. There is a common perception that declining farm income is a leading cause of the farm financial crisis of the early and mid-1980's. However, total net farm income (before inventory adjustment) has remained at about the same levels as during the late 1970's. Growing off-farm income, combined with farm-generated income, has kept the average total income of farm families at levels comparable with the median income for all families throughout the first half of the 1980's. Consequently, low farm operator income in aggregate would not seem to be a major cause of the financial crisis.

Nonetheless, a substantial number of farmers have had income problems during the 1980's. Analysis of farm income data obtained in the 1984 Farm Costs and Returns Survey indicates that 15 percent of the farm households surveyed had negative total income from all sources and that an additional 18 percent had total incomes that were positive but below the poverty level (1). Low-income farm households were heavily concentrated among the smaller farm sizes (gross farm sales less than $40,000), suggesting that low farm family incomes may be related to an inadequate resource base.

A steep drop in farm operator equity has been the most pervasive problem associated with the farm financial crisis of the 1980's. Declining farm asset values, particularly land values, have been the major contributor. In some parts of the upper Midwest, land values have declined by nearly 60 percent since 1981, with most of the changes occurring in 1984 and 1985. These declines have seriously affected the creditworthiness of farmers, and have in some cases forced farms that entered or expanded in the 1970's into technical insolvency. Land values now are at mid-1970's levels in nominal terms and at mid-1960's levels in real terms (fig. 5).

The declines in farm operator equity and farm asset values are in sharp contrast to the 1960's and 1970's when both rose steadily. Many farmers, particularly during the 1970's, counted on continued increases in farmland value to increase their equities, which could then be used as collateral for farm expansion or to meet current cash flow requirements. For farmers who engaged in this leveraging strategy during the late 1970's, when farmland values neared their peak, all that was needed to bring on a financial crisis was for farmland inflation to end.

Because of falling asset values, farm operator debt-asset ratios soared after 1980 even though farm debt fell slightly. The result of this was that farmers with high debt levels, no longer able to finance their current cash flow needs from rising asset values, encountered cash-flow problems which became more severe as asset values continued to decline. In many cases, current farm income was insufficient to meet cash-flow needs, and declining equities precluded further borrowing. Consequently, many farmers were forced to liquidate all or part of their farm assets to cover operating and debt servicing needs. As of January 1, 1986, financial stress was greatest:

- in the Lake States and Northern Plains
- on farms with gross sales of $40,000-$250,000
- on dairy and cash grain farms (Table 8).

The 1980's farm financial crisis clearly was not brought on by low farm incomes, but rather by falling farm asset values. What, then, caused asset values, which had risen steadily during the prior two decades, to turn around suddenly? One of the immediate factors was that farm product exports, which had been increasing at a rate of over 8 percent per year in the 1970's, started to decline after 1980. This was due to increased world production and a rapid increase in the exchange value of the dollar, which made U.S. farm products relatively more expensive to foreign customers. The trade-weighted value of the dollar declined throughout the 1970's but abruptly increased to nearly double its 1979 value during the first half of the 1980's. This, in turn, was partially the result of high real interest rates which overtook the economy as inflation was brought under control by a combination of tight monetary policies and stimulative fiscal policies.

These policies, coupled with the deregulation of financial markets starting in 1980, rapidly raised real interest rates from their historic levels of 1-2 percent up to an unprecedented 8-10 percent. As a result of all of these reversals, farmland values (which depend strongly on international market conditions, future expectations for income growth, and the real cost of credit) rapidly switched from growth to decline. The root causes of the change were much more conditioned by macro policies--tight monetary policy, stimulative fiscal policy, and financial market deregulation--than they were by agricultural incomes or policies. Agriculture is sensitive to both high exchange rates and high interest rates. Thus, agriculture felt doubled effects of these macro policies, but mostly through changes in the value of assets and relatively little through declining aggregate farm income.

The 1980's farm financial crisis has had its largest impact on export-oriented commodities--food grains, feed grains, and cotton--and on the regions that specialize in producting these commodities. The steepest declines in land values have occurred in the corn- and soybean-producing Corn Belt States, the wheat-producing Great Plains, and the cotton- and rice-producing Delta States.

With recent declines in the exchange value of the dollar and the real interest rate, prices of farmland should strengthen, or at least stabilize. However, exchange rates for agricultural products, relative to our competitors and trading partners, have not improved as much as other exchange rates. In addition, interest rates on farm loans have not dropped as much as for some other sectors because of perceived increases in the riskiness of farm loans.

And finally, a significant amount of farmland is currently held by lenders and farmers in financial stress, which tends to overhang the market and depress farmland prices. Thus, while agricultural land market fundamentals point to a strengthened land market, there may be another year or two of declines in parts of the country, but probably not as steep as in 1984 and 1985.

Agriculture's Link to the Economy of Rural Areas

The food and fiber system accounts for an important part of the nonmetro, or rural economy. It includes employment in farming and all businesses that support the delivery of food, clothing, shoes, and tobacco to domestic and foreign consumers. The system, with about 34 percent of the jobs held in nonmetro areas by the civilian labor force in 1975, still accounts for nearly 31 percent, or 6.2 million, of the jobs in nonmetro America (table 9). Of these 6.2 million jobs, about 43 percent, or 2.7 million, are in farm production--farmers, hired farmworkers, or agricultural services. Most of the remaining jobs are in agricultural input industries (3 percent), agricultural marketing and processing industries (18 percent), and food and fiber wholesaling and retailing (28 percent).

Agricultural production has always had strong downstream links (food transportation, processing, marketing) and upstream links (farm input suppliers) to local, regional, and national markets. Nearly two-thirds of the jobs in the farm sector are located in nonmetro areas, while three-quarters of the jobs in the other agriculture-related industries are concentrated in metro areas, showing strong agricultural linkages between rural and urban economies. These links are also quite important within the nonmetro economy, since nearly 49 percent of the jobs in agricultural input industries and 35 percent of the jobs in agricultural processing and marketing industries are located in nonmetro areas.

Regional Concentration of Agribusiness

The food and fiber system is an important source of rural jobs in every farm production region, particularly in the rural economies of the Northern Plains where the farm sector and agriculture-related industries accounted for nearly 37 percent of local nonmetro employment in 1984 (table 10). In the other farm production regions, this percentage ranged from 24 percent in New England to 34 percent in the Lake States.

The relative importance of farming and particular agribusiness sectors, however, does vary regionally. For example, in 1984, the Corn Belt had the largest share (18 percent) of total food and fiber jobs in nonmetro America, as well as the largest share in farm production jobs (20 percent), in agricultural input industries (25 percent), and in food and fiber wholesale and retail trade (16 percent). Appalachia, on the other hand, claimed the largest share (29 percent) of the jobs in the agricultural processing and marketing industries (primarily textiles and apparel). In contrast, the Pacific States had the smallest share of nonmetro jobs in farming and in every agribusiness sector.

Employment growth trends in the nonmetro economy suggest that specialization in agriculturally related industries has been a mixed blessing for many rural residents. The food and fiber system is one of the major employers in rural America. But with the exception of food and fiber wholesale and retail trade, the agricultural complex comprises slow-growth or declining industries, at least in terms of employment.

The 1975-81 Employment Expansion

As the national economy expanded during 1975-81, nonmetro economies in general, and agriculture in particular, prospered. Total U.S. employment as well as nonmetro employment in nonagricultural industries increased rapidly at 2.9 percent per year (table 11). High growth rates in nonagricultural employment were common throughout rural areas. The only glaring exception was the Corn Belt where nonagricultural employment increased only 1.5 percent per year.

Employment growth in the food and fiber system, however, did not keep pace with overall employment growth in rural areas. During this period, nonmetro employment growth in agriculturally related industries averaged only 1.2 percent per year. Slow employment growth in agriculturally related industries was typical for most farm production regions. For example, above-average growth rates were recorded only in the Northeast, Southeast, Mountain, and Pacific States. But even in these regions, overall nonmetro employment growth in the agribusiness sector (including farming) was substantially below that of the nonagricultural sector.

Sluggish employment growth in the nonmetro food and fiber system resulted from continued job losses in the farm sector (0.9 percent per year) and slow growth in the agricultural input (1.6 percent per year), and processing and marketing industries (1.2 percent per year). Slow employment growth in these industries managed to offset the rapid employment growth (5.7 percent per year) in the food and fiber wholesale and retail trade which includes fast food restaurants, groceries, and clothing stores.

Job performance of specific rural agribusiness sectors varied by region. Growth rates in the farm sector ranged between 0.3 percent (Northeast) and -1.3 percent (Southeast and Delta). A wider, much more positive, spread could be found in the food and fiber wholesale and retail trade sector where nonmetro employment growth rates ranged from 3.6 percent (Corn Belt) to over 7.3 percent (Southeast, Mountain, and Pacific States). But in the agricultural input industries, nonmetro employment growth rates were high (3 percent or more) only in the Southern Plains, Mountain, Lake, and Pacific States. Nonmetro job growth in the processing and marketing industries typically was much slower with only three farm production regions--Northern Plains, Delta, and the Southeast--managing to record growth rates near 2 percent.

The 1981-84 Employment Recovery

The depressed farm sector coupled with sluggish recovery of other industries, especially agribusinesses, from the 1980 and the 1981-82 recessions have slowed economic revival in the nonmetro economies of most farm production regions. During the 1981-84 recovery, rural employment in nonagricultural industries increased some 759,000, outpacing total U.S. employment growth (1.9 percent versus 1.1 percent per year). But this relatively rapid overall employment growth in the nonmetro economy was due primarily to the strong performance of the nonagricultural industries in the Southeast and the Southern Plains. Rural employment in nonagriculturally related industries increased at an annual rate of 2.6 percent and 2.8 percent, respectively, in these two regions. In most of the other regions, annual employment growth rates were much less, at a near-stagnant 1 percent or less.

The employment picture in the nonmetro food and fiber system, however, has been far more bleak. From 1981-84, total nonmetro employment in agriculturally related industries dropped some 38,000, or 0.2 percent per year. Aside from gains in food and fiber wholesale and retail trade of about 157,000 jobs (about 3.3 percent per year), job losses reached almost 107,000 in the farm sector, 45,000 in the input industries, and some 53,000 in the processing and marketing industries. These job losses translate to negative annual growth rates of 1.3 percent in the farm sector, 5.8 percent in the input industries, and 1.5 percent in the processing and marketing industries.

Employment declines in the food and fiber system were widespread throughout rural America. For example, nonmetro employment in the agricultural input industries declined in every farm production region. Employment in the processing and marketing industries declined in 8 of the 10 regions. Nonmetro employment losses in the farm sector were equally widespread, where 7 of the 10 regions registered losses. In the Northeast, Mountain, and Pacific States, there was some job growth in the farm sector, but annual increases averaged only 0.3 percent or less. Although all regions experienced job growth in the food and fiber wholesale and retail trade--in most cases fairly rapid growth--these employment gains were insufficient to offset most of the job losses in the other food and fiber sectors. Consequently, total nonmetro employment in the food and fiber system declined in six farm production regions and increased only minimally (less than 1 percent per year) in the Northeast, Lake, Mountain, and Pacific States.

Prospects

Conditions in the food and fiber system have not changed much since 1984. Even with the passage of the Food Security Act of 1985, farm commodity prices have not risen, commodity exports have increased only slightly, and many farmers still face financial problems. As a result, employment losses continued in the farm sector, agricultural input industries, and agricultural processing and marketing industries. The only bright picture has been the increased employment growth in food and fiber wholesale and retail trade. In the near-term, prospects for employment growth in the food and fiber system continue to be mixed.

Farm Sector

Further restructuring in the farm sector seems unavoidable, at least in the short run. Although interest rates and the value of the dollar abroad dropped substantially in 1986, major problems such as excess production capacity, low commodity prices, diminished export markets, and land values too low to support current high debt levels may continue to plague the farm economy. If these trends accelerate, more farm consolidations, foreclosures, and bankruptcies are inevitable. And, more farm operators and hired farmworkers will have to leave farming in the immediate future.

Input Industries

Overall employment in the agricultural input industries is expected to remain at current levels. Although major structural changes in the farm machinery and equipment industry are currently complete, plant closures in the fertilizer industry are expected to continue because of depressed prices of ammonia and urea. Continued decreases in planted farm acreage will generally dampen the demand for purchased inputs and any consequent employment expansion in these industries.

Processing and Marketing Industries

Demand for food and kindred products, as well as natural fibers, is expected to rise during 1986-91 at about or faster than the 0.9 percent growth rate projected for the general population (8). But no great employment increases are expected in the agricultural processing and marketing industries because of continued improvements in industry efficiency through streamlined operations (automation) and increased productivity.

Wholesale and Retail Trade

This is the only bright prospect in the food and fiber system. This sector faces demand factors markedly different from those faced by the other food and fiber industries. Since the market for food and fiber retail and wholesale trade is primarily the private household, this sector has and will benefit (expand), not only from favorable trends in consumer purchasing power (continued low agricultural commodity prices, increased real per capita income), but also from population growth and the increased participation of women in the labor force. Many services formerly produced in the home, such as food and meal preparations, have shifted to the market economy where they have shown up through increased employment in the food and fiber retail trade. As a result, this sector comprises some of the fastest growing industries in the economy. These industries, in terms of employment, are expected to continue to dominate, as they did during 1975-84, and increase as a share of total U.S. nonmetro employment.

Implications

During the past 30 years, the economic structure of rural America has become more diversified, significantly diminishing its overall vulnerability to changes in natural resource markets, commodity prices, and farm conditions. The economic future of many rural residents is now tied more to overall national economic growth and to global economic factors than to the success or failure of any one business sector. Nevertheless, the food and fiber system is still one of the predominant employers in rural America, though it comprises many slow-growth industries in terms of employment. These industries tend to moderate national expansions in economic activity and exacerbate economic downturns, making rural America more vulnerable to business cycle vagaries.3/ That is, nonmetro employment in these industries tends to increase slower than total U.S. employment during business cycle upturns and decrease more rapidly during downturns.

The farm sector, largely as a result of increased productivity of labor and land, coupled with limited prospects for growth in demand, is faced with excess resources. This situation is likely to be magnified as emerging biotechnological innovations come on line over the next several years. Consequently, the outlook is for a continued decline in farm employment for at least the next decade.

The farm and agribusiness sectors, have been declining industries with respect to rural employment over the past three decades. Although these sectors are still an important component of the rural job market in every farm production region, the prospects for their making any significant contribution to overall rural employment growth in the forseeable future are dim. The principal factors behind this assessment are slow growth in domestic markets for farm commodities, continuing increases in labor and resource productivity as new output-increasing, labor-saving technologies are brought on stream, and poor prospects for achieving the rate of export growth that was prevalent in the 1960's and 1970's.

3/ National employment series indicate that growth in the food and fiber system tends to move counter cyclically. This is often attributed to the fact that demands for food and apparel tend to be income and price inelastic [2]. During the past business cycle downturns, however, there appears to have been a divergence between nonmetro and metro areas: food and fiber employment decreased in nonmetro areas while increasing in metro areas. This appears to be the result of restructuring within the food and fiber system. During the 1980's, there was substantial conglomeration in the agricultural services, processing, and marketing industries with a resulting concentration of production facilities in metro areas.

References

1. Harrington, David, and Thomas A. Carlin. *The U.S. Farm Sector: How Is It Weathering The 1980's*, AIB-506. Economic Research Service, U.S. Department of Agriculture, Apr. 1987.

2. Lee, Chinkook, Gerald Schluter, William Edmondson, and Darryl Wills. *Measuring The Size Of The U.S. Food And Fiber System*, AER-566. Economic Research Service, U.S. Department of Agriculture, Mar. 1987.

3. U.S. Congress, Office of Technology Assessment. *Technology, Public Policy, And The Changing Structure Of American Agriculture,* OTA-F-285. March 1986.

4. U.S. Department of Agriculture, National Agricultural Statistics Service, *Crop Production.* August 1986 and earlier issues.

5. U.S. Department of Agriculture, Economic Research Service. *Economic Indicators of the Farm Sector: National Financial Summary, 1985,* ECIFS 5-2. Nov. 1986.

6. U.S. Department of Agriculture, National Agricultural Statistics Service. *Agricultural Statistics 1985* and earlier issues.

7. U.S. Department of Commerce, Bureau of the Census. *1982 Census Of Agriculture*. AC82-A-51, Vol. 1, part 51, Oct. 1984.

8. U.S. Department of Commerce, International Trade Administration. *1987 U.S. Industrial Outlook.* Jan. 1987.

Table 1--Number of farms, land in farms, and average farm size

Year	Number of farms	Land in farms	Average farm size
	1000 Farms	Million acres	Acres
1950	5,648	1,202	213
1960	3,963	1,176	297
1970	2,949	1,103	374
1980	2,433	1,039	427
1981	2,434	1,034	425
1982	2,401	1,028	428
1983	2,370	1,020	430
1984	2,328	1,019	438
1985	2,275	1,014	446
1986	2,214	1,007	455

Source: (4).

Table 2--Average U.S. labor hours per unit of production for selected commodities

Commodity	Unit	1955-59	1980-84	Percentage decrease
		--Hours of labor--		Percent
Corn for grain	100 bu	20	3	85.0
Sorghum	do.	20	6	70.0
Wheat	do.	17	7	58.8
Hay	Ton	3.7	1.3	64.9
Potatoes	do.	6	3	50.0
Sugarbeets	do.	2.9	1.1	62.1
Cotton	Bale	74	5	93.2
Tobacco	100 lbs	31	11	64.5
Soybeans	100 bu	23	12	47.8
Milk	100 lbs	1.7	.2	88.2
Beef cattle 1/	do. 2/	3.2	1.02	68.8
Hogs	do.	2.4	.3	87.5
Eggs	100 eggs	.9	.2	77.8
Broilers	100 lbs 2/	1.3	.1	92.3
Turkeys	do.	4.4	.3	93.2

1/ Includes meat produced as byproduct of milk-cow enterprise.
2/ Live weight.

Source: (6).

Table 3--Average U.S. yields per acre for selected crops

Crop	Unit	1955-59	1980-84	Percentage increase
		---Yield per acre---		Percent
Corn for grain	Bushels	48.7	101.4	108.2
Sorghum	do.	29.2	55.5	90.1
Wheat	do.	22.3	36.2	62.3
Hay	Tons	1.61	2.38	47.8
Potatoes	Hundred pounds	178.1	272.30	52.9
Sugarbeets	Ton	17.4	20.5	17.8
Cotton	Pounds	428	526	22.9
Tobacco	do.	1,541	2,052	33.2
Soybeans	Bushels	22.7	28.6	26.0

Source: (6).

Table 4--Average farm operator family net farm income, off-farm income, and total income, and median family income for all families

Year	Net farm income 1/	Off-farm income	Total farm family income	Median family income 2/
		Dollars		
1960	2,729	2,140	4,869	5,620
1965	3,533	3,792	7,325	6,957
1970	4,869	5,974	10,843	9,876
1975	8,785	9,481	18,266	13,719
1980	9,233	14,263	23,486	21,023
1981	8,378	14,709	23,087	22,388
1982	9,997	15,175	25,172	23,433
1983	10,074	15,619	25,693	24,549
1984	11,345	16,265	27,610	26,433
1985	13,881	17,945	31,826	27,735

1/ Before inventory adjustment.

2/ Net farm income includes the gross rental value of farm dwellings, which is in kind rather than money income. Consequently the net farm income concept is not entirely equivalent to median family income, which includes only money income. One common procedure to put the two income concepts on an equivalent basis (money income) is to subtract the gross rental value of farm dwellings from net farm income for comparative purposes. Because nonfarmers must pay housing costs from their money income, while most farmers do not, the net farm income figure including the rental value of farm dwellings provides a more accurate comparison of actual farm operator and nonfarmer incomes.

Source: (6).

Table 5--Distribution of net farm income by sales class

Year	$500,000 or more		$100,000- 500,000 or more		$40,000- 99,000		Less than $40,000	
	Farms	Income	Farms	Income	Farms	Income	Farms	Income
				Percent				
1960	NA	NA	0.6	6.4 1/	2.3	11.2	97.1	82.4
1965	NA	NA	1.1	10.0 1/	3.7	8.4	95.2	74.0
1970	0.1	17.6	1.7	18.6	5.6	22.8	92.6	41.0
1975	.4	29.7	5.3	35.1	12.5	24.5	81.7	10.7
1980	1.0	53.3	10.1	43.6	14.5	9.2	74.3	-6.1
1981	1.1	60.8	11.2	45.2	14.7	3.9	73.0	-9.9
1982	1.2	60.5	12.3	43.5	14.9	5.6	71.6	-9.7
1983	1.2	34.4	12.4	47.4	14.6	5.0	71.8	-11.9
1984	1.2	62.3	12.5	45.4	14.4	3.2	71.9	-10.9
1985	1.2	55.3	12.6	46.4	14.2	6.7	72.0	-8.5

1/ $100,000 and over sales class.
NA= not available.
Source: (5).

Table 6--Average net farm, off-farm and total income by sales class

	500+			100-499		
	Net farm	Off-farm	Total	Net farm	Off-farm	Total
1965	-	-	-	33,083 1/	7,278	40,361
1970	-	-	-	98,075 1/	8,429	106,504
1975	60,904	12,302	616,202	58,022	7,761	65,783
1980	506,878	19,875	526,753	39,626	9,782	49,408
1981	460,245	18,452	478,697	33,839	10,021	43,860
1982	487,336	17,078	504,414	35,482	10,129	45,611
1983	487,668	15,510	503,178	38,601	10,317	48,918
1984	582,424	14,133	596,557	41,203	10,635	51,838
1985	640,010	15,448	655,458	51,160	10,757	61,917

	40-99			Less than 40		
	Net farm	Off-farm	Total	Net farm	Off-farm	Total
1965	15,136	3,680	18,816	2,746	3,757	6,503
1970	19,842	3,976	23,818	2,156	6,059	8,215
1975	17,182	5,070	22,198	1,145	10,254	11,399
1980	5,817	8,812	14,629	-756	15,867	15,111
1981	2,222	8,983	11,205	-1,137	16,525	15,388
1982	3,796	9,187	12,983	-1,351	17,247	15,896
1983	3,468	9,290	12,758	-1,699	17,826	16,157
1984	2,534	9,513	12,047	-1,719	18,634	17,315
1985	6,566	10,347	16,913	-1,635	20,743	19,108

1/ $100,000 and over sales class.
Source: Economic Indicators of the Farm Sector, National Financial Summary, 1985.

Table 7--Farm employment, average number of persons employed, United States

Year	Total employment	Family workers	Hired workers
		Thousands	
1950	9,926	7,597	2,329
1955	8,381	6,345	2,036
1960	7,057	5,172	1,885
1965	5,610	4,128	1,482
1970	4,523	3,348	1,175
1975	4,342	3,025	1,317
1980	3,705	2,402	1,303

Source: (6).

Table 8--Farms with high debt/asset ratios (over 40 percent) and negative cashflows: distribution by region, size and type, January 1, 1986

Region	Pct.	Size Group	Pct.	Type of Farm	Pct.
Northeast	6.6	$500,000 and up	14.4	Dairy	20.6
Appalachia	5.7	$250,000-$500,000	15.1	Cash grain	13.3
Southeast	7.9	$100,000-$250,000	17.9	Tobacco, cotton	10.1
Delta	11.3	$40,000-$100,000	17.7	Veg., fruits, nuts	9.6
Corn Belt	11.7	$200,000-$40,000	11.8	Nursery or greenhse	1.9
Lake States	19.8	$10,000-$20,000	11.0	Other crops	10.5
Northern Plns	17.1	Less than $10,000	4.6	Beef, hogs, sheep	8.5
Southern Plns	8.0			Poultry	8.6
Mountain	12.2			Other livestock	7.1
Pacific	7.8				
All regions	11.2	All sizes	11.2	All types	11.2

Source: Derived from Financial Characteristics of U.S. Farms, January 1, 1986, AIB-500. Economic Research Service, U.S. Department of Agriculture, Aug. 1986.

Table 9—Agricultural employment links in the nonmetro areas

Sector	1975	1981		1984
	1,000			Percent of U.S. employment
Total nonmetro employment	17,096	19,503	20,224	20.1
Agriculture-related employment	5,843	6,257	6,218	31.6
	Percentage of total nonmetro employment			
Agriculture-related employment	34.2	32.1	30.7	31.6
Farm sector 1/	17.2	14.3	13.2	64.4
Input industries	1.4	1.3	1.0	48.7
Processing and marketing industries	6.5	6.2	5.7	35.4
Food and kindred products manufacturing	2.2	2.1	2.0	28.7
Apparel and textiles manufacturing	3.3	3.1	2.9	40.1
Miscellaneous processing and marketing	1.1	.9	.8	41.9
Wholesale and retail trade 2/	6.9	8.1	8.6	18.2
Indirectly related agribusiness	2.2	2.3	2.2	19.8

1/ Includes agricultural services, farm proprietors, and agricultural wage and salary workers.

2/ Refers to food and fiber wholesaling and retailing establishments.

Table 10—Food and fiber system employment in the nonmetro areas of U.S. farm production regions, 1984

Region 1/	Farm sector 2/	Direct agricultural links			Final consumption links	Total agriculturally related employment 3/
		Input industries	Processing and marketing industries	Total agribusiness	Food and fiber wholesaling and retailing	
			1,000			
United States 4/	2,675	211	1,149	1,361	1,734	6,218
			Percentage of total nonmetro employment			
United States 4/	13.2	1.0	5.7	6.7	8.6	30.7
Northeast	6.6	.5	4.8	5.2	9.4	24.1
Appalachia	12.7	.6	10.1	10.8	7.5	33.2
Southeast	10.4	.9	11.1	11.9	7.9	32.8
Delta	13.6	1.0	6.8	7.9	7.3	30.7
Corn Belt	15.6	1.6	4.0	5.6	8.3	32.1
Lake States	16.5	1.3	3.8	5.2	9.6	34.1
Northern Plains	20.8	2.2	4.3	6.5	8.1	36.7
Southern Plains	18.3	1.0	3.4	4.4	7.9	32.2
Mountain	10.6	1.1	2.1	3.2	10.2	25.1
Pacific	13.9	.9	2.5	3.4	10.7	30.0
			Percentage of U.S. nonmetro agriculturally related employment			
United States 4/	100.0	100.0	100.0	100.0	100.0	100.0
Northeast	5.3	4.6	8.9	8.3	11.7	8.4
Appalachia	15.4	9.8	28.5	25.6	14.0	17.3
Southeast	8.3	8.8	20.4	18.6	9.7	11.2
Delta	7.9	7.4	9.2	8.9	6.5	7.7
Corn Belt	19.7	25.1	11.9	13.9	16.3	17.5
Lake States	10.5	10.7	5.7	6.4	9.4	9.3
Northern Plains	9.9	13.4	4.7	6.1	6.0	7.5
Southern Plains	10.9	7.3	4.7	5.1	7.3	8.2
Mountain	6.5	8.5	3.1	3.9	9.7	6.6
Pacific	5.2	4.1	2.2	2.5	6.2	4.9

Note: Detail may not add to total due to rounding.

1/ Northeast: ME, NH, VT, MA, CT, RI, NY, NJ, PA, MD, DE. Appalachia: VA, WV, KY, TN, NC. Southeast: SC, GA, AL, FL. Delta: LA, AR, MS. Corn Belt: OH, IN, IL, IA, MO. Lake States: MI, WI, MN. Northern Plains: ND, SD, NE, KS. Southern Plains: OK, TX. Mountain: MT, WY, ID, CO, UT, NV, AZ, NM. Pacific: WA, OR, CA.

2/ Includes agricultural services, farm proprietors, and agricultural wage and salary workers.

3/ Total includes employment in secondary or indirectly related agribusinesses.

4/ U.S. totals include Alaska and Hawaii.

Table 11—Change in nonmetro employment, by industry and farm production region

Region 1/	Agriculturally related employment					Other industries
	Farm sector 2/	Input industries	Processing and marketing industries	Food and fiber wholesale and retail trade	Total 3/	
1975-81			1,000			
United States 4/	-158	22	84	400	414	1,992
Average annual growth rate:			Percent			
United States 4/	-0.9	1.6	1.2	5.7	1.2	2.9
Northeast	.3	1.9	-.6	5.0	1.6	2.2
Appalachia	-.9	.5	1.5	6.3	1.3	3.0
Southeast	-1.3	2.4	2.4	7.8	1.8	4.3
Delta	-1.3	.2	2.2	5.7	.8	3.4
Corn Belt	-1.0	-.2	.2	3.6	.4	1.5
Lake States	-1.0	3.9	.3	5.3	1.0	2.5
Northern Plains	-1.1	2.5	2.0	3.9	.4	2.4
Southern Plains	-.8	3.0	.6	6.5	1.0	4.7
Mountain	-.3	3.6	.4	7.4	2.6	4.4
Pacific	-.6	4.2	1.5	7.9	2.3	3.8
1981-84			1,000			
United States 4/	-107	-45	-53	157	-38	759
Average annual growth rate:			Percent			
United States 4/	-1.3	-5.8	-1.5	3.3	-0.2	1.9
Northeast	.1	-5.4	-3.2	4.5	.8	1.0
Appalachia	-1.6	-4.5	-.9	3.8	-.4	.7
Southeast	-2.9	-5.1	-1.1	4.4	-.6	2.6
Delta	-2.1	-4.6	-1.6	2.8	-1.0	1.4
Corn Belt	-2.1	-6.9	-2.7	.8	-1.8	*
Lake States	-.5	-4.5	.1	1.8	.2	.9
Northern Plains	-1.5	-6.9	-.1	.1	-1.4	.2
Southern Plains	-.1	-4.3	-3.1	2.1	-.1	2.8
Mountain	.1	-7.6	-2.0	2.5	.4	1.0
Pacific	.3	-4.9	.3	2.0	.9	1.2

---

* Less than 0.05 percent.

1/ Northeast: ME, NH, VT, MA, CT, RI, NY, NJ, PA, MD, DE. Appalachia: VA, WV, KY, TN, NC. Southeast: SC, GA, AL, FL. Delta: LA, AR, MS. Corn Belt: OH, IN, IL, IA, MO. Lake States: MI, WI, MN. Northern Plains: ND, SD, NE, KS. Southern Plains: OK, TX. Mountain: MT, WY, ID, CO, UT, NV, AZ, NM. Pacific: WA, OR, CA.

2/ Includes agricultural services, farm proprietors, and agriculture wage and salary workers.

3/ Total includes employment in secondary or indirectly related agribusinesses.

4/ U.S. totals include Alaska and Hawaii.

Figure 1. Percent of farms by percent of sales

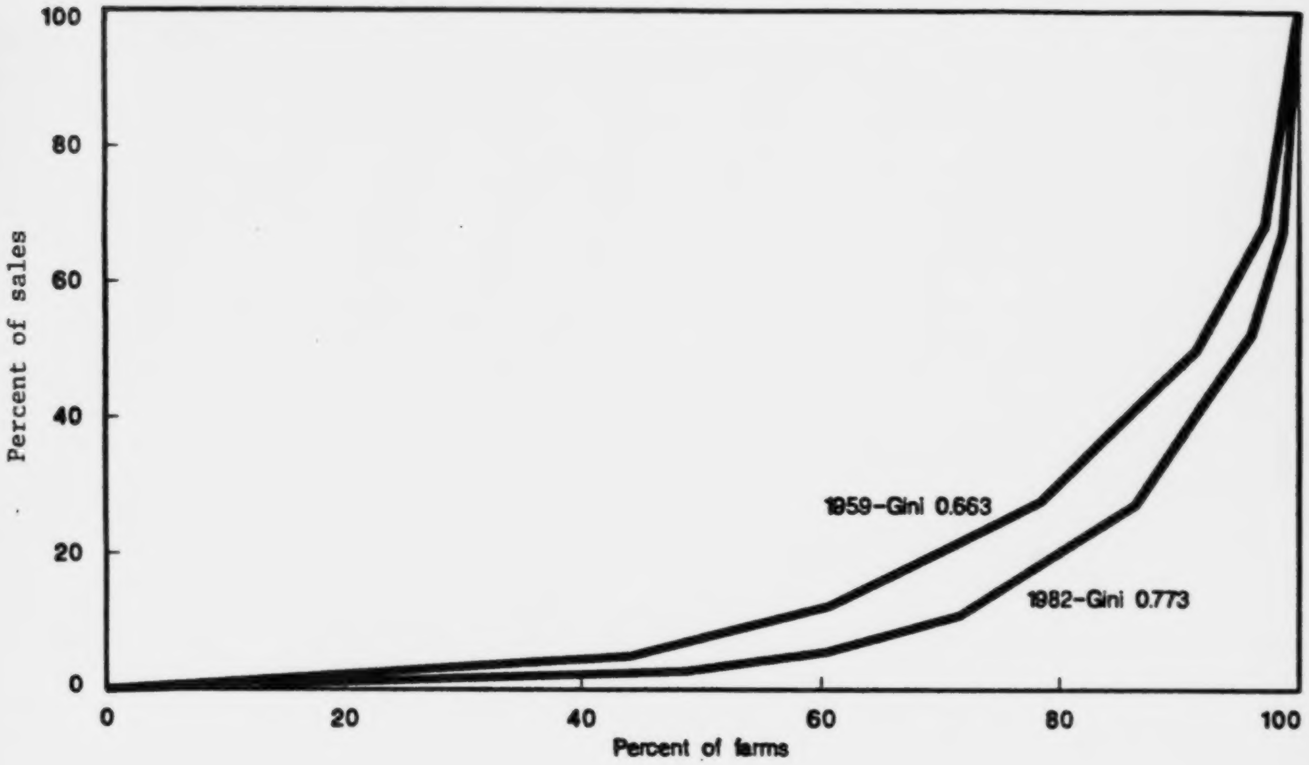


Figure 2. Indexes of farm output, input, productivity 1950-84

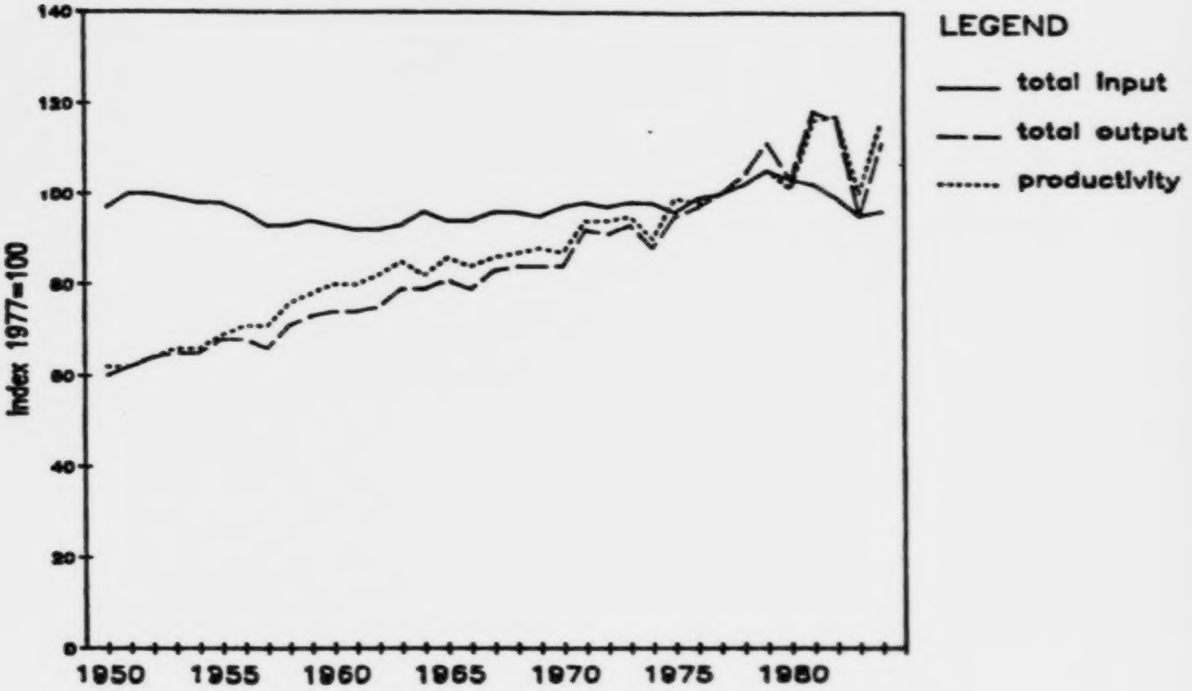


Figure 3. Indexes of farm labor productivity per hour and farm labor input, 1950-84 (1977 = 100)

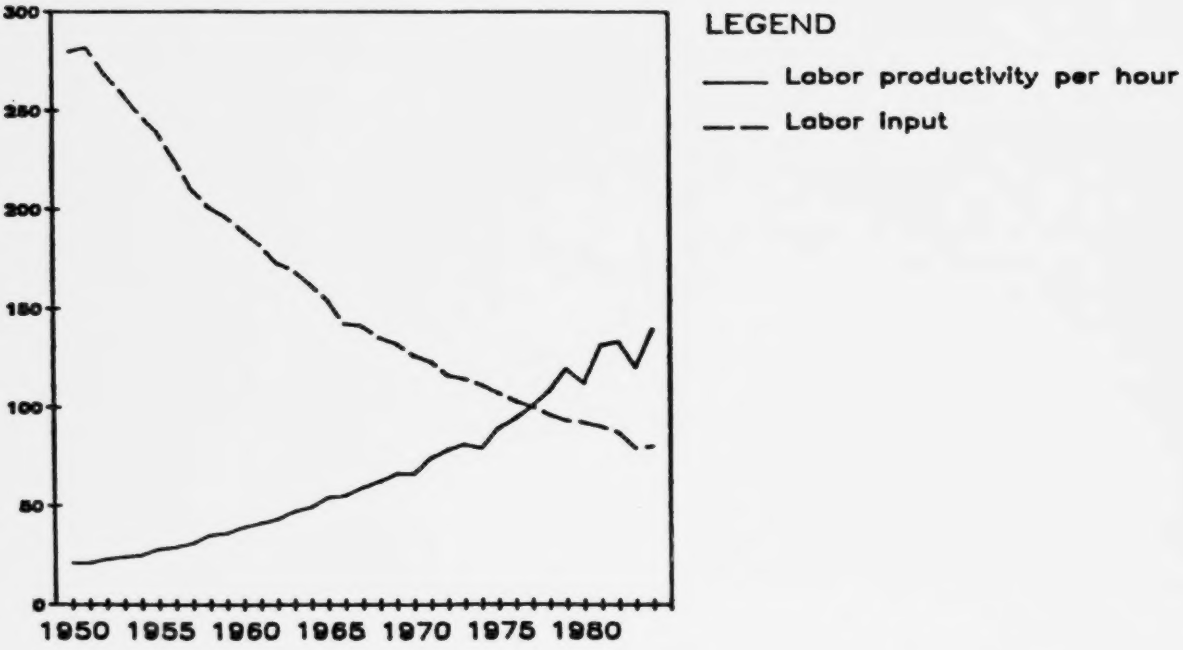


Figure 4. Acreage of harvested crops for domestic and export markets, 1950-84

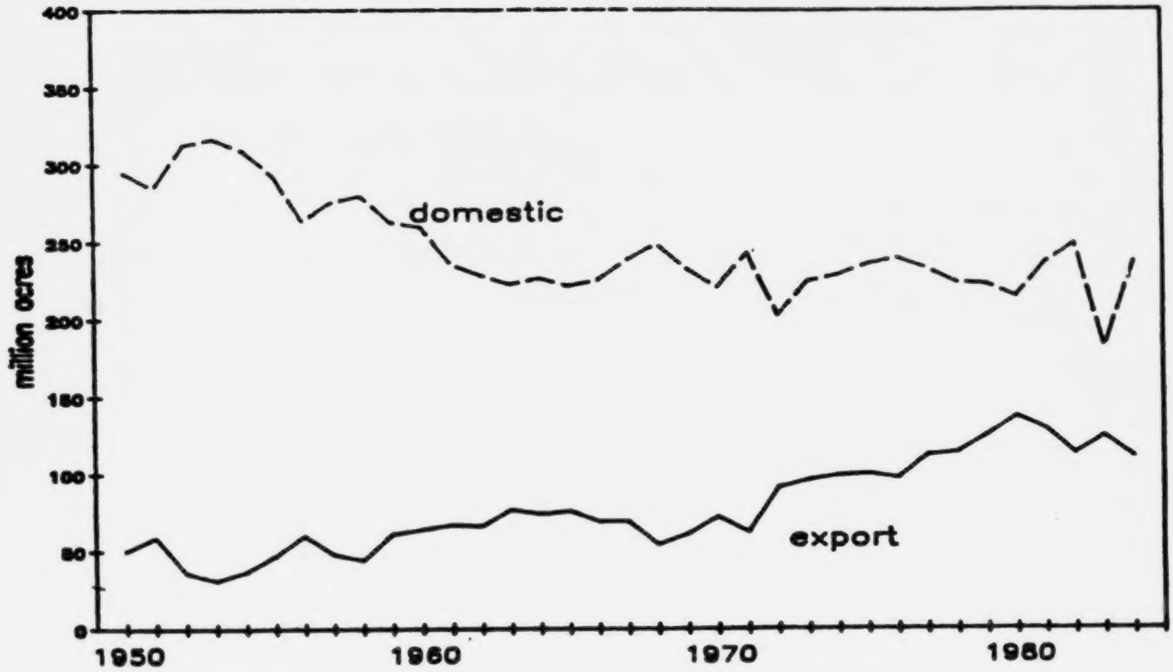
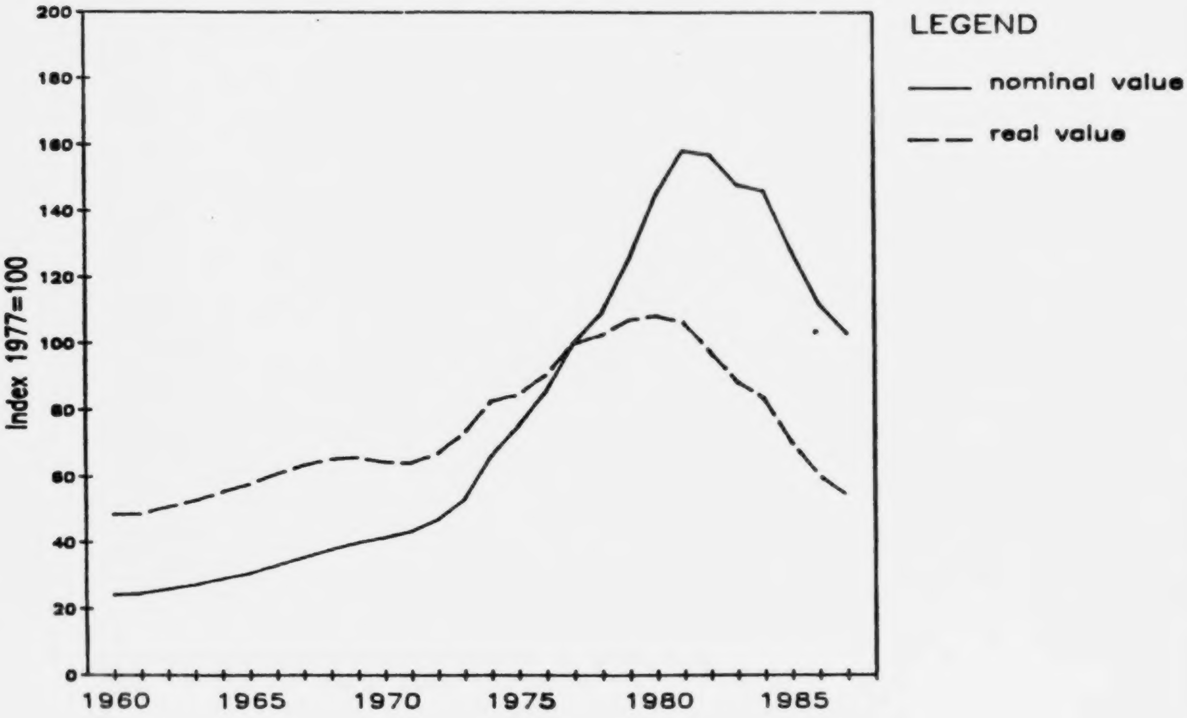


Figure 5. Index of U.S. farmland value per acre



CHAPTER 5

THE PERFORMANCE OF NATURAL RESOURCE INDUSTRIES

Bruce A. Weber, Emery N. Castle, Ann L. Shriver

Abstract. The natural resource industries (forestry energy, mining, and fishing) are very heterogeneous, highly unstable economically and significant to local economies in almost every region of the country. Although they account for only 3 percent of total U.S. earnings, natural resource industries provide 20 percent or more of earnings in one of nine U.S. counties. They provide more jobs and income in metro than in nonmetro counties.

The growth and stability of jobs and income in these industries are much affected by global economics, domestic economic and natural resource/environmental policy, and technical change. The costs of natural resource industry instability are borne mainly through lower proprietor incomes in fishing and through unemployment in forestry, energy and mining. The severity of adjustment to decline and instability depends on the availability of alternatives which generally are greater in metro areas.

If one judges natural resource industries based on the cost of providing raw materials, at least during this century, the industries' performance would generally be regarded quite favorably. The real cost of natural resource-related commodities has declined steadily in the United States during this time (1, 2).1/

Bruce Weber is Professor of Agricultural and Resource Economics; Emery Castle is Professor and Chair of the University Graduate Faculty of Economics; Ann Shriver is Director, International Institute of Fisheries Economics and Trade. All are associated with the Western Rural Development Center at Oregon State University, Corvallis.

John Hession of the Agricultural and Rural Economy Division (ARED) of ERS produced figures 1-4. He and Bernal Green, also of ARED/ERS, assisted in the conceptualization of those figures. Susan Pollack, ATAD/ERS, provided the figures on unemployment rates by natural resource region. Special thanks to Vesta Jones of the Bureau of Labor Statistics and Kathy Albetski of the Bureau of Economic Analysis for assistance in data access. Bruce Rettig and Brian Greber of Oregon State University and Raymond Mikesell of the University of Oregon provided constructive review and assistance on an earlier draft of this paper.

1/Underscored numbers in parentheses refer to sources to listed in the References section at the end of the chapter.

In this the paper, natural resource industries are examined in terms of their contributions to economic growth and stability in the United States. Specifically, the paper will concentrate on the performance of these industries in terms of job and income growth, economic stability, and unemployment.

Five industries are generally regarded as natural resource industries: agriculture, forestry and wood products, energy extraction, nonenergy mining, and fishing. In this chapter the term "natural resource industries" is used more narrowly--to include only the latter four industries. Data are provided on all five industries and the four natural resource industries are compared with agriculture where appropriate.

We define four natural resource industries and agriculture by using the Standard Industrial Code (SIC) classifications as follows:

- Energy includes anthracite coal mining (SIC 11), bituminous coal mining (SIC 12), and oil and gas extraction (SIC 13).
- Mining includes mining of ores of metals such as iron, copper, gold, silver and molybdenum (SIC 10) and the production of nonmetallic minerals (excluding fuels), such as stone, sand and gravel, clays, phosphate rocks and sulfur (SIC 14).
- Forestry and wood products include forestry (SIC 08), lumber and wood products (SIC 24), furniture and fixtures (SIC 25), and pulp and paper (SIC 26).
- Fishing includes fisheries (SIC 09).
- Agriculture includes farm proprietors and labor, food processing (SIC 20) and agricultural services (SIC 07).

The industry categories are designed to include extractive activity, direct services to primary producers, and processing done in the vicinity of primary production. Elo and Beale have pointed out that these categories "include certain amounts of furniture production that are not closely linked to local timber production, or of food processing, such as bakery goods, that are more closely tied to location of people than raw material. On the other hand, the categories exclude mineral smelting and refining, some of which is done near production sites and is directly dependent on continued local mining activity" (_7_, pp. 1-10 and 1-11). Fishing does not include fish processing, which is reported under agriculture in food processing (SIC 20). Despite these limitations, however, the categories were considered to represent the economic activity occurring in an area due to the extraction of natural resources, given available data, better than any alternative.

For the four combined natural resource industries (fishing, energy, mining, and forestry/wood products), the average annual employment as a percentage of total U.S. employment for 1969-85 was under 3 percent, less than half the total employment in agriculture (table 1--see tables at end of chapter).[2] The forestry/wood products sector clearly dominated the other natural resource industries in size. Mining, energy, and fishing combined employed just over half the number of employees in the forestry/wood products industry.

The natural resource industries make a larger relative contribution to employment in nonmetro counties than they do in metro counties. Five percent of total employment in nonmetro counties was in these four industries compared with under 2 percent in the metro counties.

Earnings in the natural resource industries averaged over 3 percent of total earnings during 1969-85 (table 2). Because of relatively high wages in energy extraction, mining, and forestry/wood products, these industries contribute a larger share of income than of jobs, while the reverse is true in agriculture. Even so, agricultural earnings are half again as large as total natural resource industry earnings. Metro and nonmetro patterns in earnings are similar to employment patterns.

Natural Resource Counties are Geographically Clustered, Chiefly Nonmetro

The performance of natural resource industries takes on a special significance in counties that are economically specialized in these industries, that is, natural resource industries contributed 20 percent or more to labor and proprietor income in 1984. Counties that specialize in natural resources and agriculture tend to be clustered geographically (figs. 1-4; see figures at end of chapter).

Forestry counties are concentrated in the Pacific Northwest, the extreme Northeast, the Upper Midwest, and parts of the Southeast. Specialized agricultural counties are found in the central part of the country, California's Central Valley, irrigated areas in the Snake and Columbia Basins of the Pacific Northwest, the Ozarks, and parts of the Atlantic Coastal Plains. Counties that specialize in mining are found in the Upper Midwest (iron ore), Rocky Mountains (copper, lead, silver, uranium and molybdenum), Nevada (gold, tungsten), Missouri (lead), and the Southwest (copper, molybdenum). Most counties specializing in energy extraction are in the coal and natural gas producing areas of the Rocky Mountains, the oil-producing areas of Texas, Oklahoma, and the Gulf Coast, and the coal fields of southern Illinois, eastern Kentucky and the Appalachian Mountains. Because about nine-tenths of fishing income is earned by enterprises too small to be covered by the BEA data used to produce these maps, no fishing-dependent counties were identified. However, such counties would likely be found on the Alaska Coast if adequate data were available.

---

[2] The measures of relative size, growth and specialization for agriculture and the natural resource industries used in this paper relate to employment and income. And, except for fishing and farming, they relate to wage and salary employment and income. Thus, for example, the growth rates for these industries reflect growth in labor inputs only and not output. Because new capital investment and technical changes often allow increased output with reduced labor input, output growth rates are not only different in size but often even in direction.

Although many natural resource industries are concentrated in regions where the particular resources are abundant, there is almost no State or region that does not have counties specialized in agriculture or one of the natural resource industries. Southern New England, with its diverse economy, is the only exception to this generalization.

Agriculture and natural resource industry specialization is largely a nonmetro phenomenon. Over 95 percent of counties specialized in agriculture or natural resource industries in 1984 were nonmetro. Table 3 summarizes the natural resource specialization of metro and nonmetro counties. The metro definition used here is the 1983 Office of Management and Budget definition of these counties based on the 1980 Census of Population. Almost half of the nonmetro counties (44 percent) specialized in agriculture (30 percent) or one of the four natural resource industries (14 percent) in 1984. Over 6 percent of metro counties specialized in agriculture (3.9 percent) or one of the natural resource industries (2.3 percent).

The natural resource specialization categories as defined here are mutually exclusive: no county specialized in more than one natural resource industry in 1984. There is some overlap between agriculture and natural resource industry specialization, however. Twenty-six counties specialized in both agriculture and one of the natural resource industries. Ten of 15 agriculture-energy counties were in Texas; half of the 10 agriculture-forestry/wood products counties were in Georgia. One Nevada county specialized in both agriculture and mining.

Number of Natural Resource Counties Up Since 1969

In 1969, 276 county economies (8.7 percent) were specialized in natural resource industries. Add this to the 504 counties (16 percent) specialized in agriculture, and almost 25 percent of the U.S. counties specialized in agriculture or natural resources.

Increased oil prices and oil exploration and increased agricultural prices and agricultural production during the 1970's led to steep increases in agriculture and natural resource specialization. The number of counties specializing in natural resource industries jumped by a third to 376, nearly 12 percent of all counties, by 1970. All of the increase was in energy counties. The number of agricultural counties almost doubled to 1,003 counties (32 percent of all counties). As a result, by 1979, 44 percent of the counties specialized in agriculture or natural resources.

While the number of counties that specialized in agriculture fell between 1979 and 1984 to 759 (24 percent of all counties), counties specializing in natural resource industries remained almost constant at 362 (11.5 percent) even though all natural resource industries experienced economic difficulties during 1979-84. In 1984, over a third of the counties (35.5 percent) in the United States specialized in either agriculture or one of the natural resource industries.

Increased specialization in energy and agriculture over the past 15 years implies a narrowing of the economic base in nonmetro areas. This trend is rather unexpected in a national economy which is becoming more diversified toward services, and in which it is well known that agricultural employment has been declining for half a century. Real income in agriculture was higher in 1979 than in either 1969 or 1984 (see fig. 5). Some counties may have gone into and out of the "agricultural county" category without a fundamental change in economic structure. There may also have been, however, some real reductions in nonagricultural sectors (nonagricultural manufacturing, services, trade) relative to the agricultural sector in these counties between 1969 and 1984. The significant growth in income and jobs in the energy industry between 1969 and 1984 did change the structure of many counties, causing a real narrowing of the economic base in the energy counties.

Mining and forestry income have grown more slowly over the past 15 years than income in other sectors (table 5). The fact that the number of mining and forestry counties has remained stable in a national economy in which these sectors have come to comprise a smaller share of national income implies a relative narrowing of the economic base in these counties as well.

To the extent that the natural resource industries and agriculture have become more exposed to international events and macroeconomic policies over which they have no control, the narrowing of the economic base in counties specializing in such activities makes them more vulnerable than they have been in the past.

Most Natural Resource Jobs and Income Are in Metro Areas

Although natural resource specialization occurs primarily in nonmetro counties, more than half of the jobs related to the extraction and primary processing of natural resources are in metro areas (table 1).[3] And a large majority of jobs and income in agricultural services and agricultural processing is in metro areas. Jobs in those sectors requiring large amounts of relatively inexpensive land for production (agricultural production, forestry) are located primarily in nonmetro counties.

Energy extraction and metal mining, however, establish themselves at the resources sites. For metal mining and coal mining, these are primarily nonmetro areas. The metro orientation of oil and gas extraction may reflect in part the location of oil offshore of major metropolitan centers on the Gulf of Mexico and in southern California. In other cases, the cities may have built up around the oil fields. The location of other natural resource jobs in metro areas may reflect the need for proximity to markets. Nonmetallic minerals (largely stone, sand, and gravel used in construction) is a case in point. To some extent, the dominance of food and kindred products in metro areas represents a similar situation.

---

[3] National Marine Fisheries Service (NMFS) data for fisheries are not available for metro and nonmetro counties so conclusions cannot be drawn about the metro orientation of the fishing industry. BEA data show a strong metropolitan dominance, probably because they reflect large fishing companies which tend to be located in larger coastal cities.

The fact that most natural resource industry and agricultural service and processing jobs and income are in metro counties directs attention to the relationship between agriculture and natural resource policy and nonmetro development. Agricultural policy and natural resource policy have traditionally been viewed in a "rural development" context as these industries do have a greater proportional effect on nonmetro county economies. Nevertheless, they affect more metro jobs and income than nonmetro jobs and income. Agriculture and natural resource policies may in fact have a greater absolute impact in metro than nonmetro counties and may not be an effective way of achieving nonmetro development goals in isolation from policies directed more broadly at socioeconomic problems in nonmetro areas.

Major Influences in the Performance of the Natural Resource Industries

As an economy changes, all sectors of the economy and especially the natural resource industries face continuous adjustment, seldom a smooth process. Performance in a given time period will be explained by trends as well as by events unique to that particular period of time. Since 1960, the natural resource-related industries in the United States have been much affected by the growing interdependence of international economies, domestic monetary and fiscal policies, resource and environmental policies, and technical change.

International Interdependence and Domestic Economic Issues

It has become trite to identify international developments as major influences affecting U.S. industries and U.S. economic welfare. Trite or not, if international interdependence were not included among the major influences affecting the performance of the U.S. natural resource industries, the discussion would be incomplete. This interdependence has several dimensions including geographic, political, and economic interdependence. The natural resource industries are much affected by this interdependence which has many manifestations including great instability in the international natural resource commodity markets. Some of this instability is rooted in the political responses by nations to the unequal geographic distribution of natural resources and the fact that, from time to time nations attempt to take advantage of that fact. However, some of the instability in these national markets is created by national policies that attempt to use international markets as a way of "exporting" some domestic instability or imbalance. No attempt is made in this chapter to develop these considerations in detail but the reader should keep in mind that the international environment is present, either implicitly or explicitly, in all domestic policies and issues (4).

13

The United States has experienced recurring bouts of inflation since World War II. After the mid-1960's the problem became increasingly critical, and in the 1970's, scarcely a facet of the economy was untouched by either inflation or by government policies to control, modify, or adjust to inflation (especially policies generated in response to rising energy prices). The natural resource-related industries, especially energy, forestry, and agriculture were very much affected by inflation and inflation-induced policies.

From the end of World War II to about 1980, the prevailing rate of interest was insufficient to compensate for inflation (Fig. 6). It has been estimated that an interest rate in the neighborhood of 4-5 percent will tend to bring lenders and borrowers together in the capital funds market, in the absence of inflation (3). Five percent is used in this paper as such a base interest rate for illustrative purposes.

During periods of inflation, the rate of inflation should be added to this base interest rate to compensate not only for time preference but also for the loss in purchasing power of funds because of inflation. If actual interest rates are compared with such a figure, a measure is obtained of the adequacy of interest rates as compensation for savings and inflation. If actual interest rates are subtracted from 5 percent plus the rate of inflation, a basis is provided for judging whether interest rates have been at an "appropriate" level. If the resulting figure is less than zero or negative, interest rates have not compensated for inflation; if greater than zero they were unnecessarily high.

Before 1980, interest rates approached the level needed to reflect the rate of inflation only during the early 1960's (fig. 6). Since 1980, interest rates have been much higher than 5 percent plus the rate of inflation. Monetary policy reflected two objectives from the end of World War II until approximately 1980. One was to maintain economic growth with price stability; the other was to keep the rate of interest as low as possible. The latter objective was politically desirable and made financing the public debt less costly. In 1980, that philosophy changed. An attempt was made by monetary authorities to control the quantity of money and permit the rate of interest to be determined by supply and demand of loanable funds.

These monetary and fiscal policies had an enormous effect on the natural resource industries, especially forestry and wood products. For more than 30 years, mortgage loans could be repaid by dollars that had less purchasing power than when the debt was contracted. This significantly increased the demand for real estate, especially housing. The acquisition of debt through the purchase of real estate became a way to enhance one's net worth. The sharp rise in both real and nominal interest rates after 1980 blunted production of the forest products used in housing construction and furniture manufacturer.

Until the 1970's, energy prices in the United States had been trending downward in common with other natural resource-related prices. Low-cost fossil fuels from the Middle East resulted in a shift in production to that region and away from the United States. When the Organization of Petroleum Exporting Countries (OPEC) decided to function as a cartel and control output in order to raise prices in the 1970's, most countries' economies were hurt. High energy prices and curtailed supplies influenced numerous production processes, so energy substitutes and conservation practices were encouraged throughout the economy. While these practices eventually added to productivity, the shortrun effect was inflationary.

The rate of productivity growth in the economy slowed considerably in the 1970's, which also contributed to inflation. Scholars on productivity were unable to explain all of the reduction in growth just as they were unable to explain all of the increases in an earlier period. Among the explanations advanced was the heavy influx of workers born since World War II. According to this hypothesis, the economy had to absorb a large number of inexperienced workers who added relatively more to demand than they did to aggregate supply. Inflationary pressures worsened, an expected temporary effect which, it was thought, would be alleviated as these people become more productive through experience. The improved productivity of the 1980's is consistent with this expectation. The 1970's also witnessed the rapid growth of international markets, even as the relatively slow growth in U.S. productivity resulted in a loss of international comparative advantage in many U.S. industries. Although agriculture and forestry were exceptions, U.S. monetary policies in the 1980's resulted in high prices for U.S. goods abroad. The United States lost markets abroad during the 1980's and became an attractive market for imports.

The collapse in energy prices in the 1980's occurred almost as abruptly as the price rises of the 1970's. OPEC did not control enough of the world's supply of fossil fuels to maintain high prices indefinitely but while prices were high energy conservation was stimulated greatly. High prices dampened consumption. The effects of conservation investments became cumulative with time and the result was enormous fluctuation in the price from the 1970's to the 1980's. Those areas, both urban and rural, that received income from energy sales, were benefitted during the 1970's but were hard hit in the 1980's.

Resource and Environmental Policies

Much of the past three decades has produced legislation designed to protect the environment. The new laws have sometimes influenced how natural resource commodities can be produced and sold, and have been especially important in the forest and energy industries.

Forest products come from both public and private lands in the United States, and Congress has made specific its expectations for the public lands. Multiple use has been given increased emphasis with explicit recognition being given to both commercial and nonmarketed products coming from the public lands. Endangered species, wilderness, and outdoor recreation are examples of nonmarketed goods to which increased attention has been directed. Many States have legislated new or modified forest practices in the past two decades for private lands; again, greater protection has been provided for the noncommercial forest outputs.

Environmental concerns also have influenced the energy industry, particularly constraining nuclear power. Clean air laws regulate the use of liquid fossil fuels and coal. "Acid rain" is among the more recent threats to environmental quality and is believed to result from the use of coal.

Technical Change

As an economy evolves, the price of labor increases and this provides an economic incentive for the development of labor-saving substitutes. Increased technical knowledge and use of capital allow increased productivity of the labor resource. Labor productivity (as measured by gross product per employee) imperfectly captures the effects of technical change for several reasons. First of all, the measure is greatly affected by large output price fluctuations and large shifts in employment that may be unrelated to technical change. Also, it does not measure total productivity because it does not consider all inputs into production. However, labor productivity trends do in some instances capture the effects of technological advances. And they do draw attention to the effects on employment, which for natural resources industries in rural areas is critical to the wellbeing of these areas.

Figure 7 shows trends in labor productivity in the natural resource industries, for 1969-85. Over this period total labor productivity in the U.S. economy grew very little, increasing less than 9 percent. Agriculture (farming and food processing) experienced the greatest improvement in labor productivity, but forest products manufacturing productivity improved as well. These have been sectors of declining or very slow growth in employment since 1969. Unless demand increases as rapidly as labor productivity increases, the number of jobs will decline or depressed incomes will occur. Even if demand recovers and past output levels are exceeded, employment levels may not be maintained if technical change results in the rapid displacement of labor.

Labor productivity in mining was relatively stable from 1969-82 but has increased sharply since then. The labor productivity index was strongly affected by a drastic drop in metal mining employment and a less severe decline in nonmetal mining employment during 1981-84.

Labor productivity in the energy industry declined dramatically between 1971 and 1982, because of declines in productity in both coal and the oil and gas sectors. Coal mining labor productivity has increased steadily since 1978. Labor productivity in the output of oil and gas increased steadily and rapidly before the early 1970's. During 1972-82 labor productivity declined but has increased yearly since that time. When oil prices were high, many efforts to increase energy output began but failed to produce expected returns before the drop in energy prices in the late 1970's. This influenced labor productivity measures because labor productivity is calculated as the value of output relative to labor inputs; exploration added to labor costs but not necessarily to output. By 1982, energy labor productivity trends became consistent with the other natural resource related industries.

Industry Structure

Each natural resource industry has developed a unique structure that influences its performance. For example, while the number of farms has declined and the size of many farms has increased rapidly, farming remains a highly competitive industry with a large number of relatively small producers. Fishing is similar to farming, but forestry is very different. Forest land is both publicly and privately owned. Some very large industrial forestry companies depend in part on lands they own as well as on output from public lands. Many companies process timber from the nonindustrial (individually owned) private forests as well. The structure of the mining industry varies mineral by mineral, but competition from abroad is often fierce. The natural gas industry has been deregulated and there will be a trend toward fewer but larger firms. A few large firms produce and market most of the oil output, although smaller firms do exist. Coal mining is distinctive in that it has a large number of companies and keen competition exists between companies and regions.

Industry structure affects performance in terms of industry reaction to economic instability. When demand declines, the more competitive industries, such as fishing and farming, which are dominated by small proprietorships, tend to maintain output. The result is lower commodity prices and reduced income for the proprietors of these small businesses. With less competitive industries, output is often curtailed, which leads to unemployment although profits also suffer, as they do in industries with greater competition. In counties where natural resource industries are an important part of economic activity, cyclical adjustment problems will depend on the nature of the industry. In some instances changes will stem from a decline or increase in proprietors' income; in others, unemployment will result. These effects will be discussed again in the final section of this chapter.

Growth, Stability, and Unemployment in Natural Resource Industries

Selected economic aspects of social well-being are now discussed: income and job growth, income and job stability, and unemployment. Quantitative indicators of growth, stability and unemployment were developed using data from the U.S. Bureau of Economic Analysis (BEA), the National Marine Fisheries Service (NMFS), and the U.S. Bureau of Labor Statistics (BLS).4/

4/BEA provided unpublished data on income and employment for (1969-84 for metro and nonmetro counties and for 1969-85 for the entire country. All employment and income data reported in this section are wage and salary figures except for those relating to farm proprietors and U.S. totals. A relatively large proportion of workers in agriculture and fishing are proprietors rather than wage and salary employees. The number of proprietors was twice as large as the number of farm wage employees during the 1970's and 1980's. This problem is more serious in the fishing industry, where proprietors of small businesses employing fewer than four individuals predominate. NMFS estimates of the total number employed in fishing suggest that almost nine-tenths of fishing employment falls into this category and is therefore not covered by the BEA data. No reliable income figures for the whole of the fishing industry are available and the ability to draw conclusions about industry income is thus limited. BEA statistics do not identify proprietors in nonfarm secotrs at the two-digit SIC level, making it impossible to report the number of proprietors or proprietor income other than in the farm sector. The U.S. totals in all cases include farm and nonfarm proprietors as well as wage and salary workers.

It would have been desirable to assess the natural resource industries in terms of reducing poverty and inequality and contributing to environmental quality. Along with fostering growth and stability and reducing unemployment, these represent a set of social goals on which there has been some agreement within the political process during the past several decades. Unfortunately, existing research has not established a clear relationship between natural resource industry activity and poverty and income inequality (6, 7). Dependence on certain resources, such as coal, combined with the patterns of resource ownership prevalent in certain geographic areas, may contribute to local poverty and inequality in some instances but natural resource and poverty/inequality links are not well established generally. Furthermore, the limited existing data on environmental quality make assessment of natural resource industry impacts on the environment problematic. Thus, the assessment will deal only with growth, instability and unemployment.

Growth

During 1969-85, wage and salary employment in the United States grew at an average annual rate of 1.81 percent (table 4).5/ Total employment grew at an average 1.99 percent per year.

The period since 1969 has been a time of relatively rapid growth for employment in the energy and fishing industries. OPEC-induced oil price increases stimulated U.S. oil and gas extraction, and employment in this sector grew by more than 5 percent per year. Since production did not increase during this period, much of the increased employment has been attributed to expanded exploration efforts. The number of new oil and gas wells drilled each year increased from 27,700 in 1973 to 90,100 in 1981 (8, p. 1). Coal prices also increased after 1972, leading to moderately rapid increases in coal mining employment. Since the location of coal deposits was better known than that of oil, most of the employment increase in this sector was in extraction rather than exploration.

A weakening of demand for oil caused declines in oil prices and employment in the early 1980's. This was due to improved energy-efficiency and slack industrial activity in oil-importing countries. Coal employment has declined since 1979 but production has increased as coal mining has shifted from deep eastern mines to the surface mines in the West.

While BEA-covered fishing wage employment declined on average, NMFS data show total fishing employment increased an average of 3.8 percent annually over the period. Entry into fishing was stimulated by the rapid rise in prices of certain types of fish (such as Coho Salmon) and the extension of coastal fishing jurisdiction in 1977. Additionally, ocean environments improved for

---

5/The measure of growth used in this paper is the mean annual percentage change in income and employment during 1969-85 (1969-84) for metro and nonmetro areas).

some types of fish leading to a more plentiful supply. Despite a large number of bankruptcies in the early 1980's due to rising oil prices, high interest rates and bad loans associated with the overexpansion of credit, employment in fishing continued to grow over the 1980-85 period.

In contrast, this period was one of very slow growth or decline in employment for the other natural resource industries. Employment in the forestry/wood products industry grew only 0.35 percent per year. Low real interest rates during the 1970's kept housing demand strong as the baby boom generation entered adulthood. Lumber and wood products employment, however, grew at half the national rate during 1969-84 as a result of increases in labor productivity, due to several factors. Rising raw materials prices and wages during this period induced major labor-saving capital investments throughout the industry. There was also during this period a movement of timber harvesting and wood processing to the southern States, where both harvesting and processing with the new equipment required less labor. Movement to the South, in turn, was induced by the emerging supply of harvestable timber in private nonindustrial forests. Federal and State cost-sharing programs several decades earlier, which had provided strong incentives for reforestation to nonindustrial private landowners, had resulted in massive reforestation investments. The related furniture and fixtures industry, which is more labor intensive, grew at less than a quarter of the national rate, in part because of increased competition from abroad. Paper and allied products employment actually declined. Mining industry employment declined by 1.5 percent per year, due in part to increased labor productivity and international competition.

Income growth was roughly the same as growth in employment. Real wage and salary increases over this period made the income growth rates slightly higher in almost all cases than the growth rates for employment (table 5).

There are some rather notable differences in employment and income growth between metro and nonmetro areas. Coal mining and nonmetal mining grew more rapidly in nonmetro than metro areas, and oil and gas extraction grew more rapidly in metro counties. For energy industries, metro/nonmetro growth differentials are likely due more to differences in the location of economically accessible resources than to differences in proximity to product markets or costs of inputs. For other industries such as forestry and wood products, metro/nonmetro growth rate differences may reflect market access and non-resource input cost differences as well as resource availability differences. The more rapid growth of paper and allied products and furniture and fixtures in nonmetro counties, for example, may reflect labor cost differentials.

Instability

The 1970's and early 1980's were a time of relatively slow growth and some instability. Two aspects of instability are considered here. The first is variation in growth rates of income. The measure of this instability used here is the standard deviation of the growth rate. The second aspect of instability is the cyclical movement of income or employment; that is, the extent to which a sector's growth or decline corresponds to the growth or decline of the national economy over the business cycle.

The standard deviation of the growth rate for U.S. wage and salary employment during 1969-85 was 2.02 percent (table 4). All the natural resource industries and their sectors were unstable relative to the national economy. The slow-growing forestry/wood products industry and the declining mining industry all had standard deviations of employment growth rates twice the national average. The rapidly growing energy industry had a standard deviation of the growth rate more than three times the national average. The rapidly growing oil and gas sector and the rapidly declining metal mining sector were the most volatile with standard deviations of 9.47 and 10.12 percent.

The standard deviation of the growth rate for real wage and salary income for the Nation during 1969-84 was 7.48 percent (table 5). For the natural resource industries, the variations in income growth are generally of the same order of magnitude as those for the wage and salary employment. An exception is fishing wage and salary income which shows a much greater growth rate variation than employment. Proprietors in the fishing industry are also known to experience great income variability but data comparable to that for wage and salary employees are not available.

Instability has fundamentally different causes in each of the natural resource industries. Fishing instability is due more to unpredictable shifts in local abundance of commercial species than to demand shifts. Instability in domestic oil and gas extraction is heavily influenced by both changes in world supply brought about by production decisions in other major oil-producing nations and changes in demand growth induced by changes in energy-use efficiency and world industrial production. Metal mining instability has its causes both in world supply shifts and shifts in demand.

Some domestic supply and demand variations are caused by domestic policy decisions. Examples are environmental restrictions on mining, pollution control regulation affecting the use of lead in gasoline and platinum in gasoline engines, embargoes on imports from certain countries, and targets for stockpiles of strategically important metals.

Instability in lumber and wood products is primarily a function of demand shifts caused by monetary and fiscal policy-induced changes in the interest rate and by export shifts due to exchange rate fluctuations. Lumber and wood products instability is also, however, partly a function of domestic supply shifts generated by forest policy and environmental restrictions on production and harvesting practices. To the extent that pesticide spray restrictions cause an outbreak of insect or disease infestation, as happened several years ago with the southern pine beetle, the need to harvest infested timber quickly may cause large increases in timber supply. Perhaps more important, to the extent that such policy contributes to an atmosphere of uncertainty in the business climate, timber harvest scheduling may be affected.

The differences between metro and nonmetro counties in cyclical instability were not particularly significant. The same forces seemed to be affecting instability in the nonmetro counties as in the metro counties.

Instability in several industries appears to be unrelated to the national business cycle. One way to assess the cyclicality of industries is through cyclical swing analysis, which takes the average annual percentage change in wage and salary disbursements during the upswing of a business cycle and subtracts from it the average annual change in wage and salary disbursements during the downturn. The resulting number, called the cyclical swing, is a measure of the amplitude of the business cycle. When applied to an individual industry, this is a measure of the extent to which the industry is procyclical or countercyclical. A large positive number means that the industry is procyclical, that is, it grew more during the upturn than during the downturn, generally following the national cyclical pattern. A large negative number indicates that the industry is countercyclical, that is, its growth during the downturn was larger than growth during the upturn of the business cycle.

If industries are truly countercyclical or procyclical, the cyclical swings in different business cycles will be similar. Some natural resource industries follow the pattern of the national business cycle (table 6). The forestry/wood products industry reflects the national business cycle, as expected given its relationship to construction and the sensitivity of construction to the national business cycle. Mining also appears to be somewhat sensitive to the national business cycle, growing during the upturn and declining during the downturn. Again, this is partly due to the importance of building materials in nonmetal mining and the dependence of that industry on construction and other manufacturing activities.

The energy and fishing industries, however, appear to have very little relationship to the national business cycle. In the first business cycle, energy showed a very high negative cyclical swing because it grew rapidly during the 1974-75 downturn. During the second business cycle, the cyclical swing was almost zero because of growth during both the upturn and downturn. Fishing wage income, similarly, grew and declined almost with no reference to the business cycle. This is explained by the strong influence of both international trade patterns and environmental variations. The fact that fishing supply has remained subject to year-to-year output fluctuations stemming from biological and physical forces differentiates it from the rest of the natural resource industry group. In addition, the important institutional change of extending coastal jurisdiction had an important effect unrelated to the business cycle.

The lack of dependence on the national business cycle of energy and fishing was due in part to the fact that these industries produce internationally traded goods. To the extent that all of the natural resource industries (including forestry/wood products) now trade more on the international market, we may see both more instability and less relationship to the national business cycle.

Unemployment

The U.S. average unemployment rate during 1969-85 for the labor force 16 years and over was 6.7 percent (table 7). Paper and allied products had much lower unemployment rates than the national average. A combined energy/mining industry had an average unemployment rate somewhat lower than the Nation but quite a bit more variable. Although energy/mining unemployment was lower during the early period of the study, it increased sharply in 1982 and has been much higher than the national average since then (fig. 8). The other major natural resource sectors--lumber and wood, and furniture and fixtures--both have unemployment rates much higher than the national average and standard deviations that are considerably larger. Except for paper and allied products, natural resource industries tended to have higher unemployment rates and more variable unemployment than other sectors.

The continued existence of high unemployment rates in many natural resource industries raises questions about the behavior of workers in those industries. How do they adapt to the instability inherent in these industries? Stevens, in a study of lumber and wood products workers, found that within this sector were two types of workers: a "core" of "lifers" whose only earnings were in wood products and who held about 80 percent of the sector's jobs, and a "periphery" of "floaters" who work seasonally in the industry or frequently move from one job to another in wood products (9). Given their skills and options, both lifers and floaters appear to be making economically rational decisions. When this study was begun in 1972, unemployment in wood products was found primarily among floaters. Given changes in the economic environment for wood products since that time, it may well be that much more of the recent unemployment in this sector is among lifers.

Dual labor markets may exist within other natural resource sectors as well. They would be most likely to occur in slow-growing or declining sectors, such as furniture and fixtures and metal mining, with seasonal fluctuations in labor demand and cyclical or irregular swings in product demand. They would be less likely in rapidly growing sectors such as oil and gas extraction where patterns of behavior are still in flux, or in stable industries such as pulp and paper. Nor would they be likely among hired fishermen, whose labor market more likely resembles that of agricultural labor, where work is seasonal and most workers have other sources of income in the off-season.

What effect does specialization in natural resource industries have on local unemployment rates? Counties specializing in forestry and wood products had unemployment rates higher than the national average in every year from 1976-85; mining counties had higher rates in 9 of the 10 years (table 8). Energy counties had unemployment rates above the national average in 6 of the 10 years, including the last 4 years. Agricultural counties had lower unemployment rates than the Nation in all but the last 2 years.

Specialization in energy and agriculture once protected counties from high unemployment rates. Today, however, all types of specialization in agriculture and natural resources are associated with higher than average unemployment.

Whether this is merely a temporary phenomenon or reflects a fundamental shift in economic structure is a matter of conjecture. Many of the counties specializing in energy and agriculture in 1984 became specialized in these industries during the rapid growth period of the 1970's (see table 3). Both industries also faced severe declines in the prices of their products during the early 1980's. Higher than average unemployment rates in energy and agricultural counties may presage outmigration from these areas. The extent of outmigration in the face of higher than average unemployment depends on the availability of relevant employment opportunities in the local labor market compared with opportunities elsewhere, and on the extent of attachment to the locality.

Implications for Rural Areas

The preceding material reveals two major characteristics of natural resources industries that make generalizations difficult. One is their spatial dispersion. They are to be found throughout the United States and only in parts of New England are there counties where these industries do not provide a significant amount of income and employment. The other characteristic is the highly diverse nature of the industries. Regardless of the basis on which they were compared--response to domestic and international developments, resource and environmental policy, technical change, or market structure--the differences outweighed the similarities. The one thing they all seem to have in common is that all are subject to considerable instability.

When the spatial dispersion is combined with the differences among the industries even greater variation arises. This is often manifested in differing effects and responses within an industry to outside forces. For example, an environmental policy that calls for less sulfur emissions will tend to depress the demand for coal much more in some regions of the country than in others; indeed, one part of an industry may even benefit.

Still another manifestation of the diverse and pervasive nature of the natural resource industries is that they are in no sense exclusively rural or nonmetro. Because forestry requires large amounts of land, forestry and wood products are located mainly in nonmetro areas. But the location of fishing, oil and gas extraction, and mineral mining depends chiefly on the location of the resources, which may or may not be in nonmetro counties. And the processing of natural resource products, like the manufacture of many other goods, often finds economies of location in large urban areas. That is the reason that the natural resource industries contribute more employment and income to metro areas than to nonmetro areas. Against this background of spatial dispersion and dissimilarity, the following generalizations are offered:

- o Natural resource industries will probably not organize politically as a single group. Although interest groups exist within each industry, the differences between and even within the industries are so great that it is improbable they will organize to speak with a single or even with a few voices.

- Because natural resource industries are important in both metro and nonmetro counties, policies affecting these industries cannot be considered to be exclusively or uniquely for nonmetro America. Even in recognition of this, the importance of the natural resource industries to many rural areas could easily be overlooked or not emphasized sufficiently. One in seven nonmetro counties receives 20 percent or more of its income from these industries. The importance of these industries to rural welfare tends to become greater the more geographically remote the area, and the less well developed its linkage with urban centers.

- All of the natural resource industries are affected greatly by international economic developments. When one goes beyond this broad generalization, diversity again comes to the surface. Some of the industries are major exporters while other natural Resource commodities are imported, such as the liquid fossil fuels. Despite this diversity, these industries, and many of the rural areas where they are important, would benefit significantly from greater stability in international economic relations. It is also clear that the instability and uncertainty in international markets stem from two major sources. One pertains to international economics and international relations, the other to our domestic economic policies.

- U.S. monetary and fiscal policies have an enormous effect on the natural resource industries. Monetary policy is very uneven in its impact on particular industries and, in turn, on regions where these industries are important. The roller coaster pattern of U.S. monetary policy of recent decades has destabilized housing and forestry and, unfortunately, the way that timber sales from public lands are made has not improved the situation. Other natural resource industries that are influenced by international trade are affected by monetary policy as well; a strong dollar discourages exports and encourages imports.

- The variation in structure among the natural resource industries causes them to respond differently to economic change. Farming and fishing, which tend to be more competitively organized, have little control over price; they are price takers. When demand declines, the price of their product drops and incomes suffer. Because they are smaller and hire fewer workers than mining, energy, and forestry, proprietors' incomes suffer and many proprietors leave the industry. Energy, mining and much of forestry, which are less competitively organized, reduce output when demand drops, usually precipitating less employment or lower wages, or perhaps both. Regardless of industry structure, all of the industries, and the rural areas where they are important, would benefit greatly from a more stable economy operating at a high level.

- The natural resource industries are greatly influenced by the resource and environmental policies adopted at both the national and State levels. The nature and effect of such policies will vary industry by industry and rural area by rural area. Some areas may be adversely affected, at least in the short run, by environmental policies that may cause reduced timber harvest, less coal mined, and closed-down nuclear plants. Nevertheless, the rural areas are also places where people live. Areas that become more attractive due to environmental improvement as rural residences, for retirement, and for outdoor recreation will benefit. The stability provided by economic activities of this kind may be very attractive to many places that have been subject to "boom and bust" experiences.

- All the natural resource industries have experienced technical change although at significantly different rates. A great deal of labor has been displaced by this process. Indeed, it is by making these industries more efficient that the less developed societies progress. And technical change can be expected to continue in the future even though its effect will be very different among the various natural resource industries. Industries that use relatively larger amounts of labor (forestry) will, of course, be affected very differently than industries that use relatively less (pulp and paper manufacturing). The closer the link between the rural area and the urban economy, the more likely are the resources freed by technical change to find employment. Rural areas that are remote in some sense and highly dependent upon a labor-using natural resource industry have the greatest cause for concern. It is one of the paradoxes of economic change that the regions and industries that become the most efficient over time may have to bear the major part of the social and economic cost.

References

1. Barnett, Harold J. "Scarcity and Growth Revisited," ch. 8 in Scarcity and Growth Reconsidered. ed. V. Kerry Smith. Baltimore: Johns Hopkins University Press, 1979.

2. Barnett, Harold J., and Chandler Morse. Scarcity and Growth: The Economics of Natural Resource Availability. Baltimore: Johns Hopkins University Press, 1963.

3. Castle, Emery N., and Irving Hoch. "Farm Real Estate Price Components, 1920-78," American Journal of Agricultural Economics, vol. 64, no. 1, Feb. 1982.

4. Castle, Emery N., and Kent A. Price, eds. U.S. Interests and Global Natural Resources: Energy, Minerals and Food. Washington, DC: Resources for the Future, Inc., 1983.

5. Council of Economic Advisors, Joint Economic Committee. Economic Indicators. Various issues.

6. Deavers, Kenneth L., and David L. Brown. Natural Resource Dependence, Rural Development, and Rural Poverty, Rural Development Research Report Number 48, Economic Research Service, U.S. Department of Agriculture, July 1985.

7. Elo, Irma T., and Calvin L. Beale. Natural Resources and Rural Poverty: An Overview. Washington, DC: National Center for Food and Agricultural Policy, Resources for the Future, Inc., 1983.

8. Smith, Edward J. Boom and Bust in Energy Extraction, ERS Staff Report No. AGES860423. Economic Research Service, U.S. Department of Agriculture, May 1986.

9. Stevens, Joe B. "Six Views about Wood Products Labor Force, Most of Which May Be Wrong," Journal of Forestry, vol. 77, no. 11, Nov. 1979.

10. U.S. Department of Agriculture, Economic Research Service. Specialization analysis conducted with unpublished Bureau of Economic Analysis data.

11. U.S. Department of Agriculture, Economic Research Service. Unpublished unemployment data.

12. U.S. Department of Commerce, Bureau of Economic Analysis. Unpublished data on gross product by industry.

13. U.S. Department of Commerce, Bureau of Economic Analysis. Unpublished income and employment data from regional economic information systems.

14. U.S. Department of Labor, Bureau of Labor Statistics. Employment and Earnings. Various issues.

Table 1—Average employment in natural resource industries, United States, metro and nonmetro counties, 1969-85 1/

Industry	United States		Metro		Nonmetro	
	Thousands	Percent of total	Thousands	Percent of total	Thousands	Percent of total
Fishing2/	176	0.17	NA	NA	NA	NA
Fishing wage	18	.02	13	0.02	6	0.03
Energy	634	.61	307	.38	314	1.44
Coal mining	202	.20	47	.06	154	.71
Oil and gas	432	.42	260	.32	160	.73
Mining	202	.20	89	.11	115	.53
Metal	85	.08	30	.04	58	.27
Nonmetal	117	.11	59	.07	58	.27
Forestry and wood products	1,850	1.79	1,123	1.39	712	3.21
Forestry	13	.01	5	.00	8	.04
Paper and allied	686	.66	510	.63	176	.81
Lumber and wood	675	.65	285	.35	377	1.73
Furniture and fixtures	476	.46	323	.40	151	.69
Total natural resource industries	2,862	2.76	NA	NA	NA	NA
Agriculture	6,225	6.08	2,857	3.54	3,395	15.57
Farm proprietors	2,843	2.74	777	.96	2,090	9.58
Farm wage	1,245	1.20	538	.67	743	3.41
Agric. services	435	.42	279	.35	118	.54
Food and kindred	1,703	1.64	1,262	1.57	443	2.03
Total employment	103,587	100.00	80,610	100.00	21,811	100.00

1/For metro and nonmetro counties, 1985 data were not yet available. The metro and nonmetro averages for 1969-84. Metro and nonemetro data are taken from different series than the U. S. data and do not sum to U. S. totals.

2/Total fishing employment estimates are from National Marine Fisheries Service. Metro and nonmetro estimates are not available.

NA = not available.

Source: (13).

Table 2—Average real earnings in natural resource industries, United States, metro and nonmetro counties 2/

Industry	United States		Metro		Nonmetro	
	Million dollars 1982	Percent of total	Million dollars 1982	Percent of total	Million dollars 1982	Percent of total
Fishing 2/						
Fishing wage	360	0.02	272	0.02	92	0.03
Energy	16,727	.94	8,594	.60	7,684	2.61
Coal mining	5,364	.31	1,273	.09	4,055	1.40
Oil and gas	11,364	.65	7,321	.51	3,630	1.25
Mining	4,593	.26	2,107	.15	2,521	.87
Metal	2,137	.12	794	.05	1,394	.48
Nonmetal	2,456	.14	1,313	.09	1,127	.39
Forestry and wood products	32,800	1.88	20,626	1.44	11,842	4.08
Forestry	184	.01	79	.01	101	.03
Paper and allied	14,927	.85	10,831	.76	4,004	1.38
Lumber and wood	10,664	.61	4,705	.33	5,762	1.99
Furniture and fixtures	7,025	.40	5,010	.35	1,975	.68
Total natural resource industries3/	54,480	3.11	31,599	2.20	22,139	7.59
Agriculture	77,098	4.42	41,587	2.90	36,966	12.74
Farm proprietor	32,415	1.85	9,333	.65	23,572	8.12
Farm	9,090	.52	4,879	.34	5,750	1.98
Agric. services	4,581	.26	2,992	.21	1,015	.35
Food and kindred	31,012	1.79	24,383	1.70	6,628	2.28
Total labor and proprietor income	1,748,898	100.00	1,434,127	100.00	290,224	100.00

[1] For metro and nonmetro counties, 1985 data were not available. The metro and nonmetro averages are for 1969-84. Metro and nonmetro data are taken from a different series than U.S. data and are not comparable with U.S. data.

[2] Accurate figures on total fisheries earnings are unavailable. Fishing wage earners are roughly 10 percent of all fishermen but probably represent more than 10 percent of all fishing income.

[3] Totals for natural resource industries represent covered BEA wage and salary income only (fishing proprietor earnings unavailable). Numbers on this line are therefore underestimates and not comparable to the corresponding line in table 1.

Source: (13).

Table 3—Counties specializing in natural resource industries, selected years 1/

Industry	1969	1979	1984
		Number	
Energy	70	172	162
Metro	2	11	9
Nonmetro	68	161	153
Mining	39	39	33
Metro	0	1	0
Nonmetro	39	38	33
Forestry and Wood Products	167	165	167
Metro	16	12	8
Nonmetro	151	153	159
Total natural resource industries	276	376	362
Metro	18	24	17
Nonmetro	258	352	345
Agriculture	504	1003	759
Metro	73	41	29
Nonmetro	431	962	730
Total counties	3,155	3,155	3,155
Metro	735	735	735
Nonmetro	2,420	2,420	2,420

1/Counties in which 20 percent or more of labor and proprietor income is in specified industries. The 1983 metro definition identifies metro and nonmetro counties for all 3 years.

Source: (10).

Table 4—Growth and stability of employment in natural resource industries, 1969-85 1/

Industry	United States		Metro		Nonmetro	
	Average annual growth rate	Standard deviation of growth rate	Average annual growth rate	Standard deviation of growth rate	Average annual growth rate	Standard deviation of growth rate
	Percent		Percent		Percent	
Fishing	3.81	3.08	NA	NA	NA	NA
Fishing wage	-.65	4.04	-0.16	8.22	-1.00	10.23
Energy	4.18	7.57	5.44	7.78	4.08	7.76
Coal mining	2.48	8.51	1.62	8.84	3.36	8.61
Oil and gas	5.04	9.47	6.15	9.10	4.92	10.33
Mining	-1.54	5.65	-1.30	4.87	-1.39	6.66
Metal	-3.59	10.12	-2.32	9.82	-2.94	10.17
Nonmetal	-.22	3.19	-.75	3.22	.09	3.91
Forestry and wood products	.35	4.81	.14	4.75	.78	5.40
Forestry	4.97	6.30	5.12	9.22	5.61	7.01
Paper and allied	-.27	3.05	-.52	3.24	.57	2.94
Lumber and wood	.97	6.14	1.50	6.66	.79	6.32
Furniture and fixtures	.41	7.13	.08	7.19	.98	8.03
Agriculture	-.77	1.22	-.31	1.08	-.70	1.10
Farm proprietors	-1.63	1.58	-1.14	.82	-1.30	.61
Farm wage	-1.05	4.38	-.06	5.14	-.39	4.68
Agric. services	5.53	3.23	6.22	3.05	3.85	7.25
Food and kindred	-.69	1.30	-1.21	1.27	.77	1.79
Total wage and salary employment	1.81	2.02	1.75	2.10	1.66	2.02
Total employment	1.99	1.81	2.00	1.94	1.60	1.62

1/1985 data are not yet available for metro and nonmetro counties; metro and nonmetro are for 1969-84 period. Metro and nonmetro data are taken form a different series than U.S. data and are not comparable with U.S. data.

NA = not available.

Source: (13).

Table 5—Growth and stability of real earnings in natural resource industries, 1969-85 1/

Industry	United States		Metro		Nonmetro	
	Average annual growth rate	Standard deviation of growth rate	Average annual growth rate	Standard deviation of growth rate	Average annual growth rate	Standard deviation of growth rate
	Percent		Percent		Percent	
Fishing:						
Fishing wage	0.92	11.08	1.71	11.07	-0.24	14.17
Energy	6.20	8.27	7.57	8.15	6.04	9.06
Coal mining	4.86	10.67	4.10	11.53	6.05	10.50
Oil and gas	6.96	10.07	8.22	9.40	6.41	11.89
Mining	-.41	6.35	-.25	5.42	-.11	7.55
Metal	-1.62	10.61	-.05	10.45	-1.20	10.73
Nonmetal	.56	3.80	-.20	4.23	1.20	4.39
Forestry and wood products	1.02	5.52	.66	5.24	1.70	6.56
Forestry	4.65	4.80	5.16	6.62	4.70	6.25
Paper and allied	1.02	3.76	.58	3.80	2.14	4.16
Lumber and wood	1.55	7.67	1.73	7.76	1.65	8.13
Furniture and fixtures	.43	7.74	.01	7.53	1.11	9.39
Agriculture	.19	14.19	-.01	5.91	1.88	25.37
Farm proprietor	5.06	42.89	1.72	28.16	8.33	54.86
Farm wage	-1.10	5.70	1.69	4.15	1.07	5.17
Agric. services	5.62	3.74	5.53	3.14	4.09	6.62
Food and kindred	-.21	1.64	-.64	1.53	1.13	2.56
Total wage and salary income	2.19	2.48	2.01	2.50	2.22	2.84
Total labor and proprietor income	2.42	3.23	2.11	2.76	2.00	5.08

1/1985 data are not yet available for metro and nonmetro counties; metro and nonmetro data for the 1969-84 period. Metro and nonmetro data are taken from a different series than U.S. data and are not comparable with U.S. data.

Source: (13).

Table 6—Cyclical swing in natural resource industry wage and salary disbursements

Industry	Average real annual change		Cyclical swing, 1972-75	Average real annual change		Cyclical swing 1976-82
	1972-73	1974-75		1976-79	1980-82	
			Percent			
Fishing	16.60	9.13	7.47	.69	-11.25	11.94
Energy	3.37	19.39	-16.02	9.92	9.86	.06
Mining	4.03	-.86	4.89	4.97	-9.39	14.36
Forestry and wood products	4.34	-8.18	12.52	3.71	-4.39	8.09
Agriculture	2.13	-1.71	3.84	.95	-4.39	5.33
Total wage and salary	4.58	-2.36	6.94	3.73	0.06	3.67

Source: (13).

Table 7--Unemployment rates, by industry, 1969-85

Industry	Mean	Standard deviation
	Percent	
Energy and mining1/	6.10	3.9
Forestry2/		
Lumber and wood2/	10.64	3.43
Furniture and fixtures2/	9.05	2.84
Paper and allied2/	5.63	1.71
Agriculture	10.26	2.86
Total labor force (16 years old and over)	6.71	1.62

1/Includes oil and gas, coal, metal mining, and nonmetal mining.
2/Data available for 1973-85 only.

Source: (11).

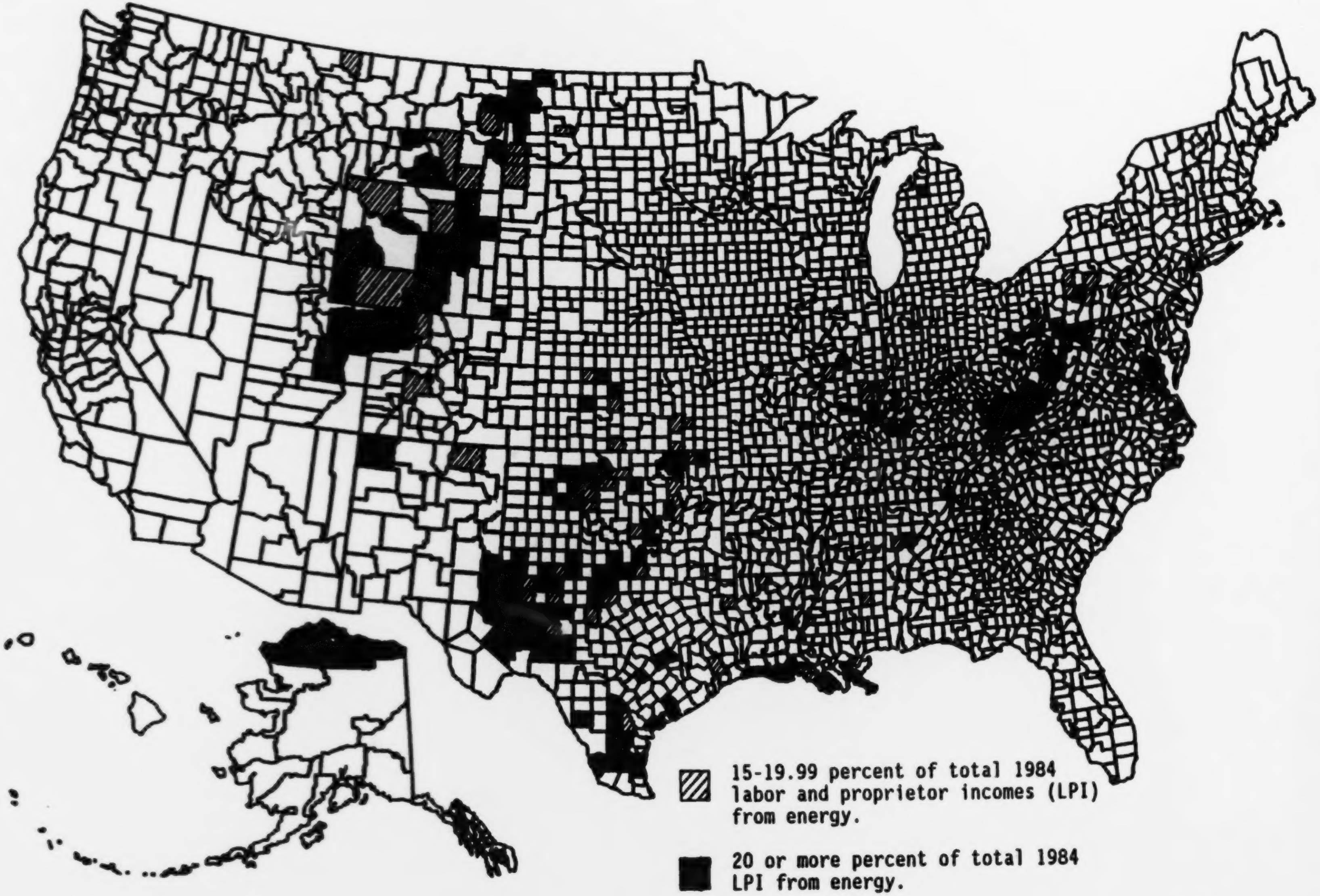
Table 8—Average unemployment rates in counties specializing in agriculture and natural resources, 1976-85 1/

Industry	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Energy	5.9	5.8	6.2	6.0	7.0	7.4	10.1	13.9	10.7	11.0
Mining	8.3	8.1	7.4	6.1	7.4	7.6	15.8	15.5	10.3	11.7
Forestry and wood products	8.4	8.1	7.1	7.6	9.8	10.7	13.4	12.4	10.6	10.3
Agriculture	5.7	5.8	5.5	5.5	6.9	7.4	9.3	9.6	8.4	8.5
Total labor force (16 years old and over)	7.7	7.0	6.0	5.8	7.1	7.6	9.7	9.6	7.5	7.2

1/Unemployment rates are calculated by summing the number of unemployed in each year across counties in each group of specialized counties (as defined in table 1) and dividing this by the sum of the labor forces in those counties.

Source: (11).

Figure 1--Energy counties, 1984

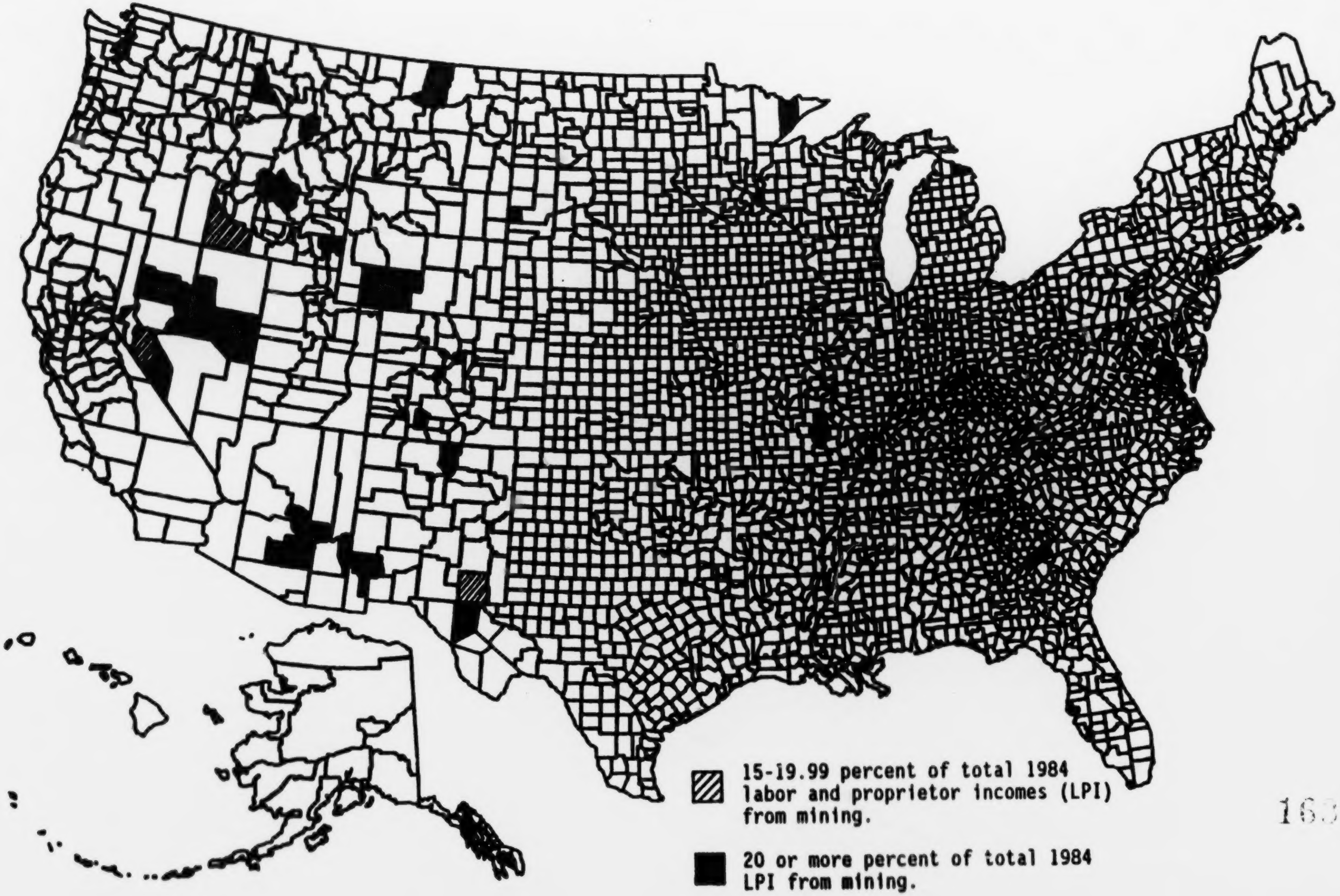


▨ 15-19.99 percent of total 1984 labor and proprietor incomes (LPI) from energy.

■ 20 or more percent of total 1984 LPI from energy.

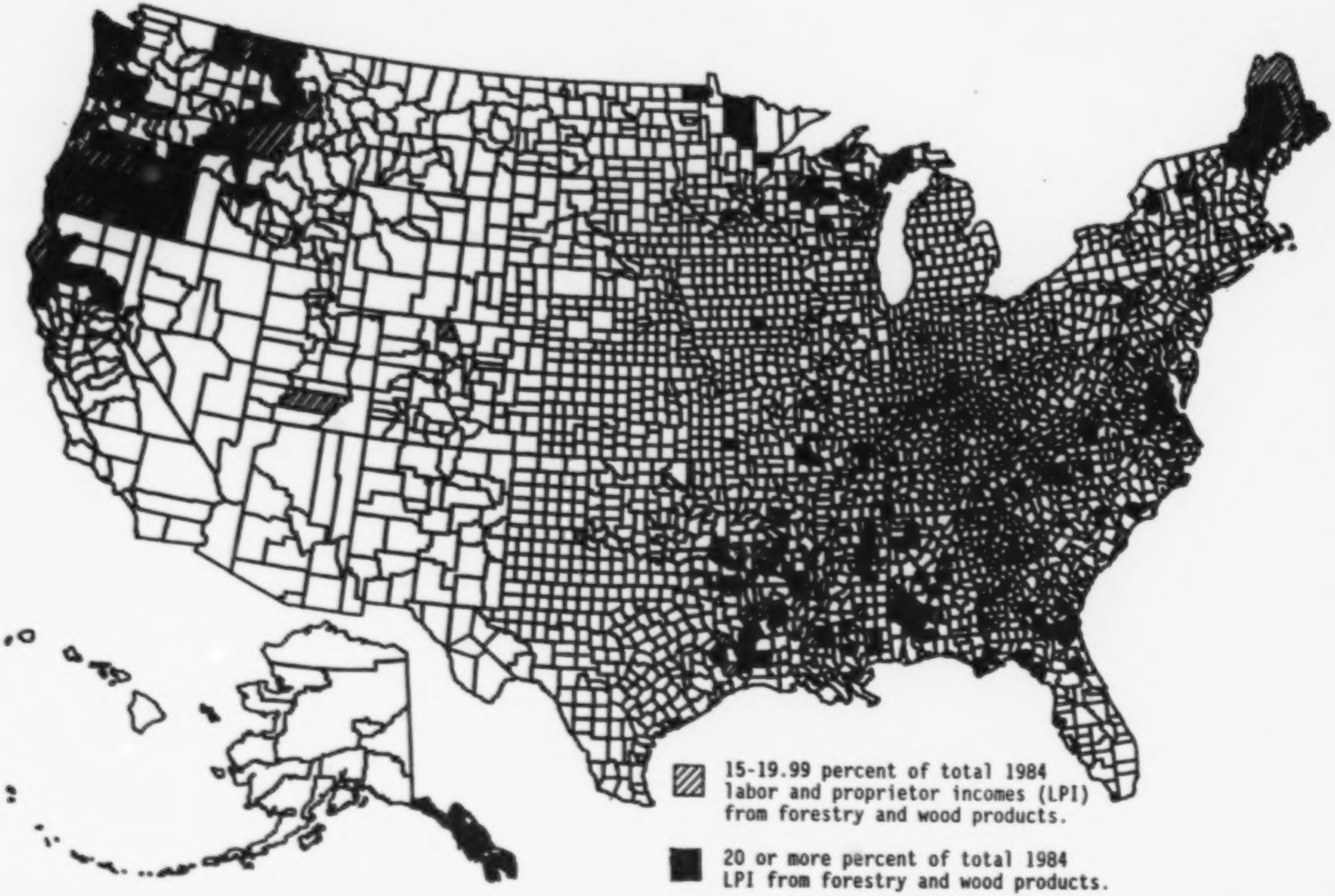
Source: (10).

Figure 2--Mining counties, 1984


▨ 15-19.99 percent of total 1984 labor and proprietor incomes (LPI) from mining.
■ 20 or more percent of total 1984 LPI from mining.

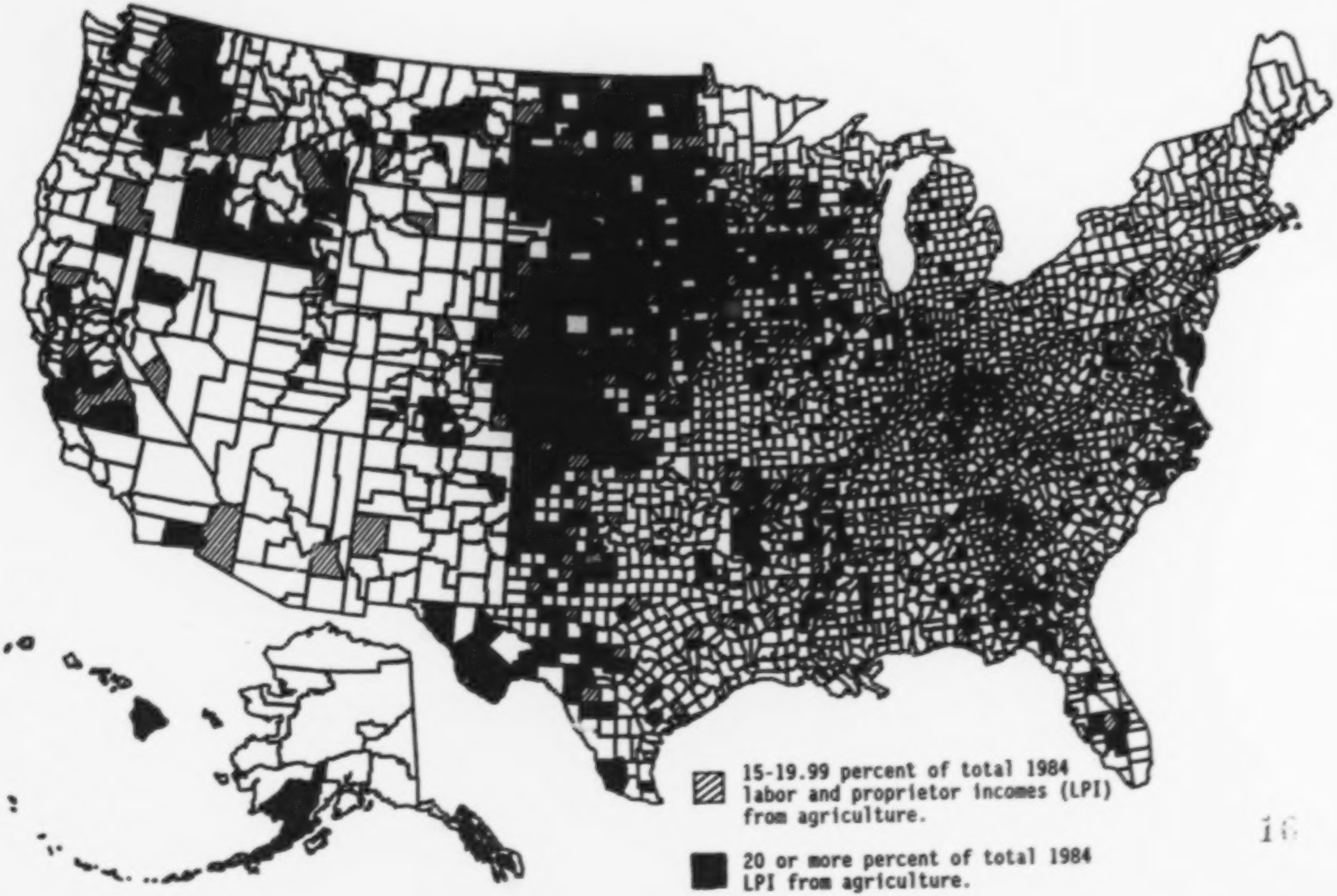
Source: (10).

Figure 3--Forestry and wood products counties, 1984


▨ 15-19.99 percent of total 1984 labor and proprietor incomes (LPI) from forestry and wood products.
■ 20 or more percent of total 1984 LPI from forestry and wood products.

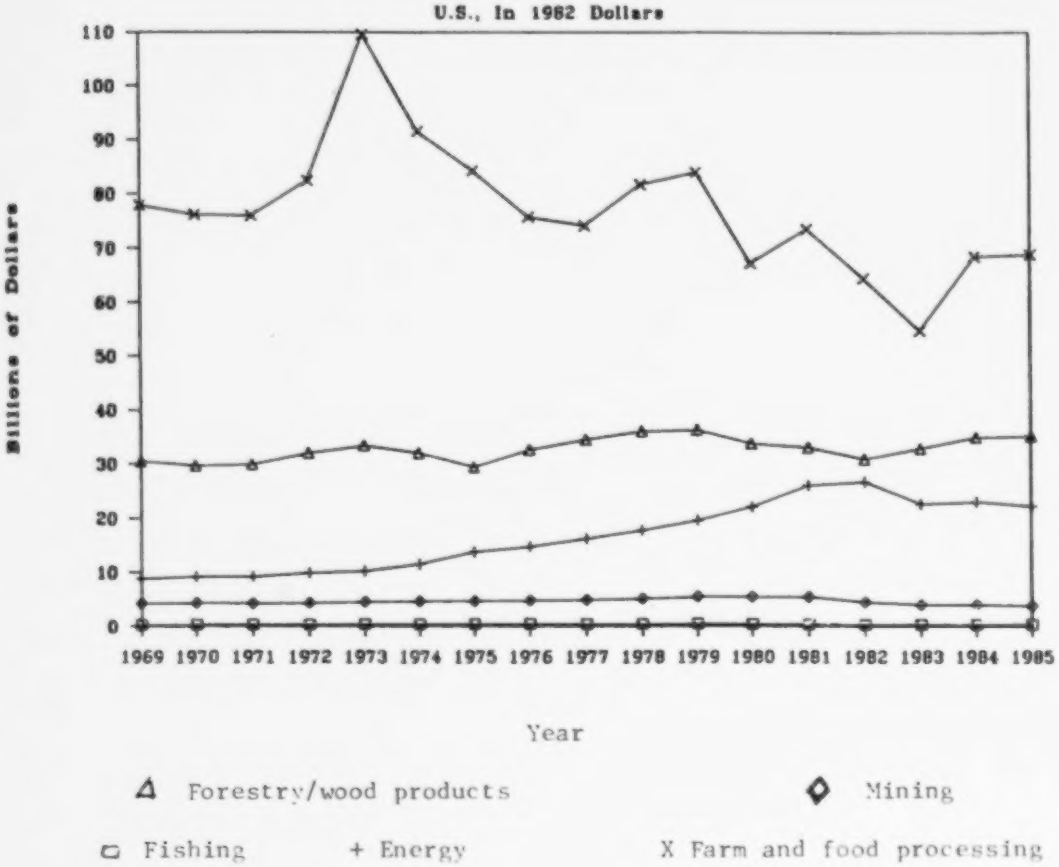
Source: (10).

Figure 4--Agriculture counties, 1984


▨ 15-19.99 percent of total 1984 labor and proprietor incomes (LPI) from agriculture.
■ 20 or more percent of total 1984 LPI from agriculture.

Source: (10).

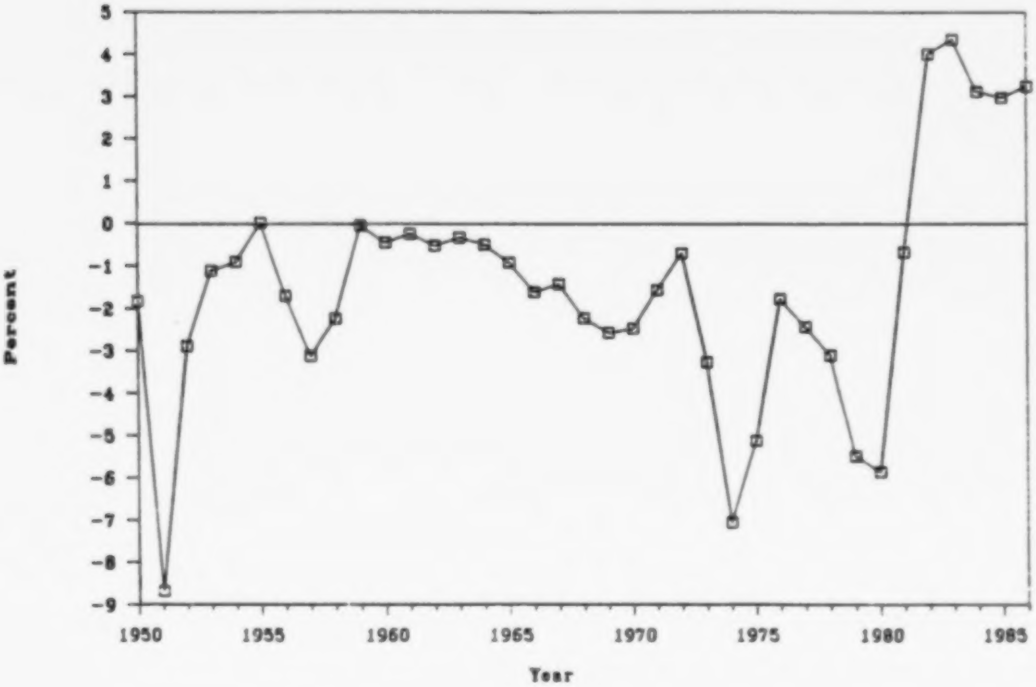
Figure 5. Income in natural resource industries



Source: (13)

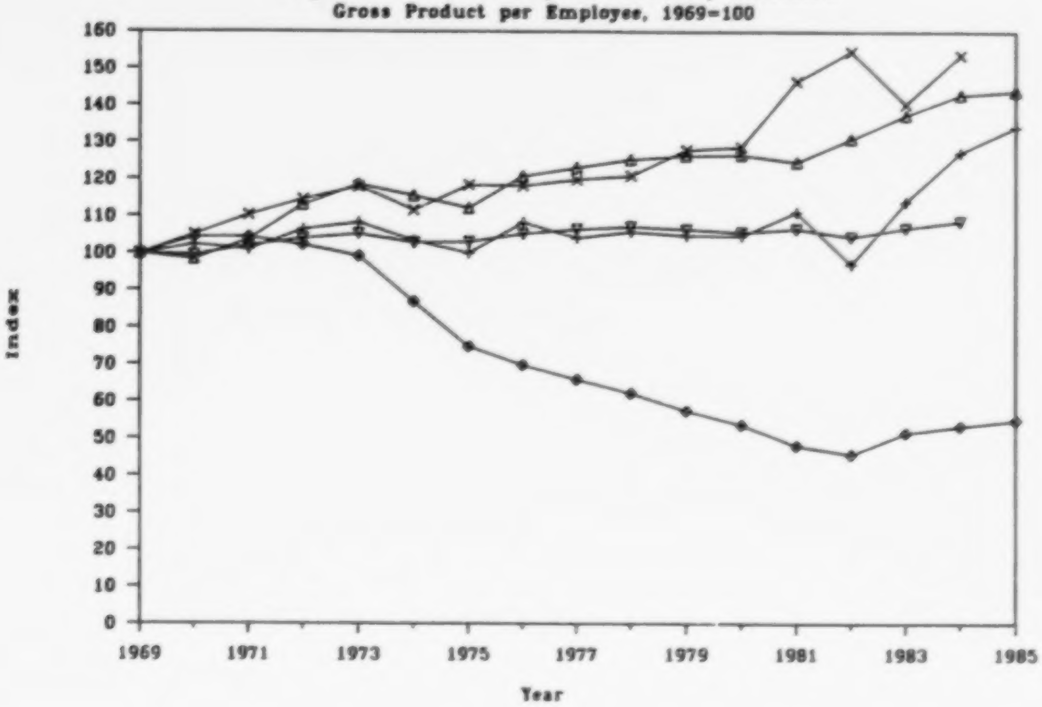
Note: BEA-covered income only. Most fishing income is not included in BEA data.

Figure 6. Interest rate deviations from amount necessary to compensate lenders for time preference and inflation



Source: (14).

Figure 7. Labor productivity indexes



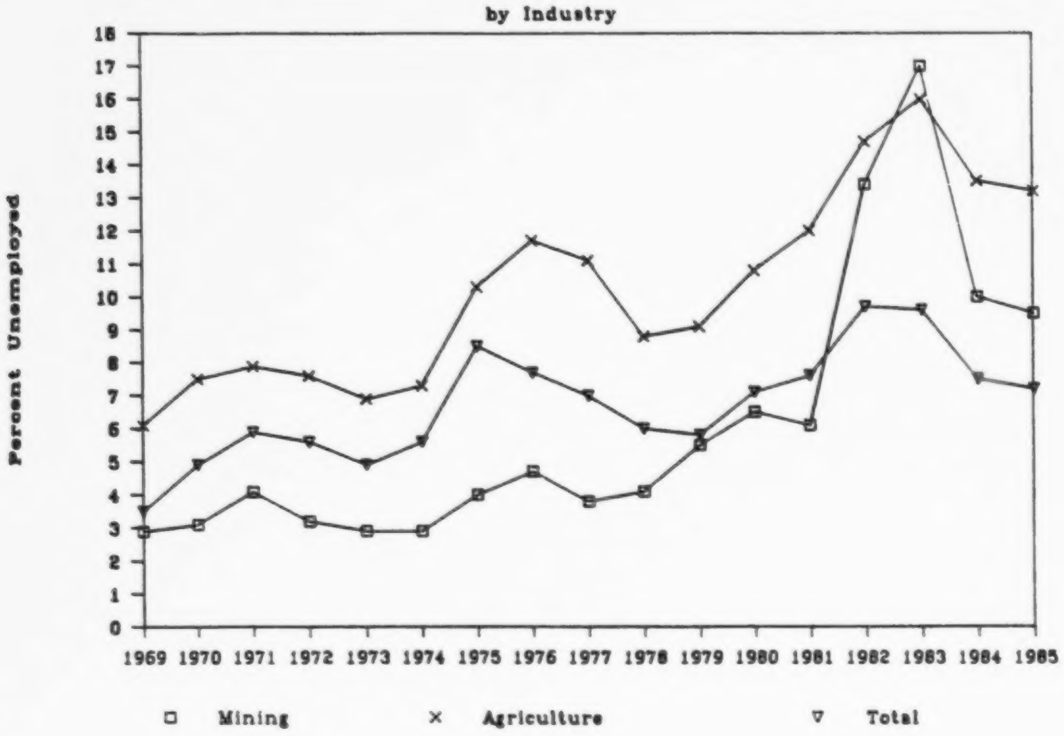
+ Mining ◊ Energy X Farm and Food processing

□ Agricultural services, forestry, and fishing ▽ Total

△ Lumber, wood, paper and allied products, furniture and fixtures manufacturing

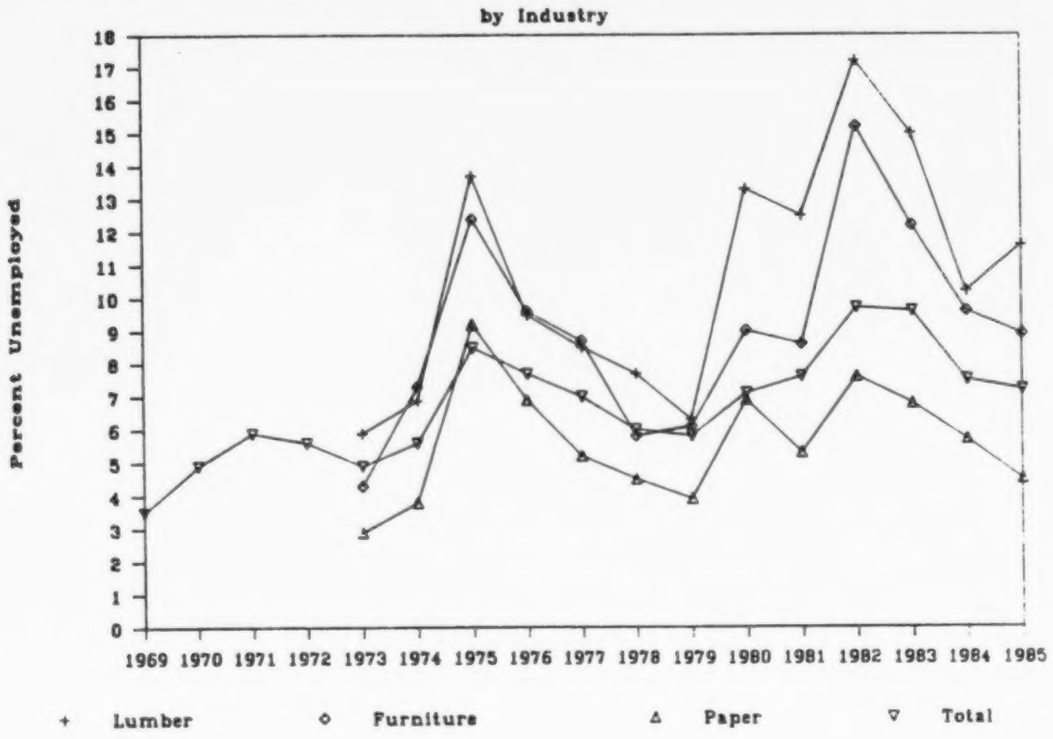
Sources: (12 and 13).

Figure 8. U.S. Unemployment Rates



Source: (14).

Figure 9. U. S. unemployment rates by industry



Source: (14).

CHAPTER 6

PROSPECTS FOR SERVICE SECTOR EMPLOYMENT GROWTH IN NONMETRO AMERICA

James P. Miller and Herman Bluestone

Abstract. Service-producing industries provided most of the employment growth in nonmetro America and all of it in metro America over the past 15 years. Growth in both kinds of areas appears to be largely explained by changes in demography, household incomes, consumer tastes, and technology. It also tends to be linked to growth in goods production. That linkage appears to be stronger for nonmetro areas, than for metro areas partly because the goods-producing sector is a larger employer in nonmetro areas and partly because nonmetro areas appear to lack the amenities needed to attract business-oriented services such as data processing, insurance, brokers, and other administrative services. Preliminary analysis of recent employment trends suggests that nonmetro areas may continue to lag behind metro areas in services unless they can capture a larger share of the Nation's goods production or expand export services.

Over the past 15 years, there has been virtually no employment growth in the Nation's goods-producing industries (manufacturing, construction, mining, agriculture, forestry, and fisheries). Employment growth in these industries has been arrested partly by continuing gains in labor productivity and in more recent years by more intense foreign competition. Nearly all of the employment growth has been in the service-producing industries (wholesale and retail trade, finance, insurance, real estate, other private services, and government).

Because growth in goods-producing employment has been stagnant, future employment growth prospects for rural areas would seem to hinge on their ability to compete with urban areas for service sector jobs. In this chapter, we focus on how successful rural areas have been and are likely to be in this competition. We begin by evaluating what other social scientists have had to say about the recent expansion of employment in the service industries with specific reference to rural areas. In this evaluation, the implications for

---

James Miller and Herman Bluestone are economists in the Agriculture and Rural Economics Division, ERS, U. S. Department of Agriculture. This chapter is based on a paper presented at the 26th Annual Meeting of the Southern Regional Science Association in Atlanta, March 26-28, 1987.

service industry growth in rural and urban areas are emphasized. We used data on wage and salary employment for the 1969-84 period to assess how well nonmetro areas have been keeping up with metro areas in expanding service jobs.

First, we describe how patterns of employment growth in nonmetro and metro service industries have changed between 1969-76 and 1976-84 and relate these changes to the growth pattern in goods-producing industries. We then use the data to identify the types of service activities that tended to concentrate in nonmetro areas.

Employment in the service industries increased rapidly in both nonmetro and metro areas from 1969-84. Much of this growth appears to be associated with changes in demography, household income, consumer tastes and technology. Part of the change in the rate of service employment growth in both nonmetro and metro areas between the first and second half of the 1969-84 period is associated with the change in the rate of goods-producing employment growth. But, the service industry also appears to have more of a life of its own in metro than nonmetro areas; employment in new urban-based service activities (producer services) continued to expand and even to accelerate after 1976.

Over the 1969-84 period, nonmetro service employment growth lagged behind metro growth. However, during the first half of the period (1969-76), service employment growth in nonmetro areas exceeded that in metro areas by a fair margin. Nonmetro service employment seems to have grown faster because of their link to goods-producing jobs, which increased in nonmetro areas but declined in metro areas during 1969-76. After 1976, the rate of service sector employment growth fell sharply in nonmetro areas, and increased sharply in metro areas. The divergent patterns in goods-producing employment growth between nonmetro and metro areas appears to have been a factor in their different rates of service sector growth. During 1976-84, the nonmetro growth rate in services dropped far below the metro rate as growth in the goods-producing sector faltered in nonmetro areas but sharply recovered in metro areas.

From the data analysis, we also find that most service industries in 1984, other than those catering to local consumers or linked to the traditional rural economic base (natural resource industries and manufacturing), were underrepresented in nonmetro areas. These findings are consistent with current regional and urban economic theory and with the empirical findings in several recent studies. The revolution in information technology (telecommunications, satellite transmission, and personal computers) may eventually weaken the ties that bind some service activities to major population centers and lead to a decentralization of these services to rural areas. If this happens, many rural areas may have the potential to substantially increase jobs by marketing services to other areas in addition to expanding recreation and retirement-oriented activities. However, we were not able to identify that such a development has yet begun. As in the past, changes in the service sector in most rural areas, with the notable exception of some areas closely linked to metro areas, probably will continue to reflect changes in the goods-producing sector and changes in consumer tastes.

The Process of Service Sector Growth

Classical export base theory predicts that an area's employment in nonbasic industries (those serving local markets) will expand to complement growth in its basic industries (those serving markets outside the area) (13). 1/ In general, basic industries tend to be goods-producing industries and nonbasic industries tend to be service industries. Thus, data for these two categories of industries have often been used to "test" the export base model. In examining employment trends over the last 25 years, we are struck by the fact that service sector employment increased dramatically despite little growth in the goods sector. Because of this growth difference, goods-producing employment at the national level declined fairly steadily from about 41 percent of total nonfarm wage and salary employment in 1950 to about 26 percent in 1985. If we consider the United States as a region exporting to the rest of the world, export base theory cannot explain the expansion of service employment over this entire period because employment in the goods-producing industries did not increase much.

Others have argued that the national trend in service sector employment growth has been much more affected by changes in household income, technology, and consumer tastes than by changes in employment in basic or export industries. For example, Fuchs offers three hypotheses to explain the service sector employment growth (8). First, he argues that since services have an income elasticity of demand greater than 1, services per capita would increase faster than income as per capita income rises. Given the substantial increase in real per capita income in the United States over the last quarter century, we might expect services to account for an expanded share of both national income and employment for this reason alone.

Second, Fuchs suggests that as the economy grows, it becomes more efficient for some services, which were once provided within the firm and household, to be procured from outside. Services provided by management, consulting, public relations, and data processing firms are some of the business services being contracted out by firms, while day care, eating away from home, and household help are those being used by households. While in many cases, the same volume of services is being provided as before, these services are now measured as a separate market activity and counted as part of the service sector. Specialization, however, particularly in urban centers, also has lowered the cost of many outside services and actually increased the volume demanded and produced.

Finally, Fuchs seeks to explain the increasing importance of services in the national economy by noting that growth in labor productivity has been slower in the service-producing industries than in agriculture, manufacturing, and mining. Thus, even if the output of services increases no faster than the

---

1/ Underscored numbers in parentheses refer to sources listed in the References at the end of the chapter.

output of goods, employment would increase more rapidly in service-producing industries than in goods-producing industries. As a result, the share of total employment in services would increase.

The relatively fast growth of service employment has also been attributed to the aging of the American population. The premise is that older people spend a larger share of their income on services than younger people.

The export base theory, which was not intended to explain service sector growth at the national level, is expected to perform better at the regional level, particularly in regions that have experienced rapid change in their basic sector, and that specialize in goods production, such as agricultural, mining, and manufacturing areas. Hence, this theory might be expected to be more relevant for explaining service-sector employment growth in nonmetro than in metro areas. For example, Garnick explains nonmetro employment growth in the 1970's in the context of the export base model (9, 10).

Service employment expanded to complement the growth of basic goods production. It was, according to Garnick, a process of "catching up" with the rapid expansion of basic industries. Manufacturing industries, in search of low wages and nonunion labor, had expanded rapidly. Agriculture and related industries, with the promise of more Russian wheat sales in the future, also had expanded, as did many recreation- and retirement-related industries. Garnick however, expressed concern about the recent trend of service employment in nonmetro areas which, as he observes, has slowed and "may be close to peaking." Factors that favored rapid employment growth in the 1970's may have spent their force in the 1980's. Markets for traditional agricultural and energy-related products have not expanded as rapidly and foreign competition in low-wage manufacturing has increased.

Bender provides further support for the export base explanation of growth in rural areas (1). He concludes that services should be considered as playing a "passive role" in nonmetro county growth; that growth in the service sector is ultimately dependent on the expansion of basic goods production and other sources of income from outside the county such as transfer payments.

Locational Orientation of Services

The continuing shift from a goods to a services economy appears to have benefited metro areas more than nonmetro areas, especially in recent years. This is partly because most of the newly created services, especially those based on recent advances in technology, have been originating in metro areas and have been slow to decentralize into nonmetro areas.

Location suggests that consumer services, such as retail stores, restaurants, auto repair shops, will be evenly distributed in relation to population, whereas "advanced" producer services, such as data processing and other business services, which can market over large areas will tend to locate in metropolitan areas (6). These advanced services will be largely confined to metro areas because of the cost and marketing advantages of agglomeration.[2/] This will leave the peripheral, nonmetro areas with "residual specialization" in certain consumer services of the kind provided by government, recreational, and retirement businesses, and some distributive activities. A good example of residual specialization in these services would be warehousing, trucking firms, motels, and restaurants at rural interstate highway interchanges.

Duncan demonstrated that a certain city size is required to support particular service industries. News syndicates and miscellaneous advertising, for example, required a critical city size of at least 50,000-100,000 persons in 1954 (7). Business services, in general, are more urbanized than personal services. The most specialized consumer services also tend to be urban oriented. The least specialized services tend to be rural oriented, such as repair shops run by jacks-of-all-trades or offices that offer a combination of real estate, insurance, and financial services.

Noyelle argues that advanced producer services, which have recently contributed more to national employment and GNP growth than other services, will continue to locate and expand only in the largest cities (15). Advanced producer activities provide a multitude of business services to other urban businesses (data processing, insurance, brokerage, and other administrative services). These activities either market directly to other businesses outside the urban areas or sell to local businesses who then export goods that embody these services (2, 16). Noyelle believes that a "functional dichotomy" has emerged between a few major metropolitan areas that are well positioned to produce and export advanced services and other, smaller metro and nonmetro areas. Consequently, most rural areas are not expected to attract advanced producer activities.

Cocheba, Gilmer, and Mack lend further support to Noyelle's findings by documenting the weakness of advanced producer services in a predominantly nonmetro region, the Tennessee Valley (4, 5). They attribute the relatively slow growth of the Tennessee Valley's service sector to low per capita income, which has inhibited the growth of many consumer services and the low proportion of company headquarters in the region, which has reduced the need for producer services. Growth of manufacturing in the Tennessee Valley has been primarily in branch plants controlled by headquarters in other regions. The three researchers concluded that the absence of headquarters in the region has limited the growth of legal, engineering, accounting, and other support services that typically locate in or near headquarters operations. This suggests that reliance on indigeneous rural economic development through the creation and expansion of new locally owned businesses may be more effective than attracting branch plants of regional or national firms.

[2/] The term 'agglomeration' refers to the concentration of people attracted to one place because many firms are in that place. Because of the large market, firms can specialize, produce, and market goods and services at lower costs (14).

While most rural areas appear less favorably placed than metro areas to participate in the current rapid expansion of advanced producer services, the outlook for total employment growth in the rural service sector does not appear to be completely discouraging for a number of reasons. First, residential services have been increasing about as fast in nonmetro as in metro areas. Second, some rural areas have had some success in exporting services. For example, Smith and Pulver (18, 19) in a survey of 385 nonmanufacturing businesses in nonmetro areas of Wisconsin found a significant amount of exporting activity. The exporting businesses were typically absentee-owned businesses that chose nonmetro locations because of labor and other cost advantages. Some 27 percent of the businesses studied made over half of their sales outside the local area.

Eventually, rural areas may benefit from the rapid improvement of information technology telecommunication, satellite transmission, and personal computers. In the future, some advanced export services may be provided via telecommunication from locations outside of metropolitan areas. The location decision may be characterized as a "telecommunications-transportation tradeoff" which is an expression of the extent to which information using telecommunications can provide an alternative to the physical movement of people, goods, and information. Garnick argues that technological change favors a dispersion of both production activities and producer services; that advances in telecommunications and transportation have overcome the barriers of distance and reduced the importance of agglomeration economies in the provision of producer services (9). Noyelle also suggests that data processing facilities of large businesses (notably in insurance and banking) may increasingly be attracted to nonmetro locations because advances in communications allow them to operate at a distance from the central office, and advances in data processing permit the employment of relatively low-skilled clerical labor, which is found almost everywhere (15).

Leven agrees that the the new information technology can decentralize producer services, particularly information control functions formerly carried out by middle managers and staff within the firm (12). Daniels, however, is less certain about the "pace and outcome" of the possible spatial changes to result from innovations in computer and telecommunications technology (6). He observes that, "speculation seems to predominate over fact" (6, p. 272). The same technology that could promote decentralization of some service industries, could at the same time, lead to centralization of others. Daniels believes lower-order consumer services, could continue to disperse and become increasingly localized whereas higher-order producer services, which are mainly concerned with control rather than customer service, could become even more centralized in the future.

Recent studies also reveal that most of the more desirable service jobs will be in metro areas. Managerial, professional, and technical jobs that pay well are not generally found at rural service locations. They are found in urban centers where company headquarters, regional offices, and specialized service activities tend to concentrate. Lower-order service activities that rely on unskilled labor, notably sole proprietorships and branch outlets in retailing and other residentiary services are commonly found in nonmetro areas. Urban oriented services--distributive, producer, and social--according to a study by Stanback and Noyelle, ranked higher than consumer services in average annual earnings in 1975 (21).

Approach Used in Data Analysis

Our empirical analysis differs from earlier work on the service industries in three ways. It uses a more comprehensive database. It is national rather than regional in scope. And it focuses on differences between the nonmetro and metro service sectors. We use wage and salary employment data from the U.S. Department of Commerce (Bureau of Economic Analysis) to compare metro/nonmetro changes in the rates of employment growth and to quantify differences in the distribution of employment among various service industries. Changes of growth in these industries in nonmetro areas, both adjacent and not adjacent to metro areas, are also examined.

Data

Patterns of employment change between 1969-76 and 1976-84 are measured by compounded average annual growth rates. The early period was one of rapid manufacturing employment growth in nonmetropolitan areas whereas the most recent period was one of slow growth. Employment location quotients (discussed in more detail later) indicate the kinds of areas where various categories of service-producing industries tend to concentrate. A location quotient greater than 1 shows that a group of counties, such as large metro, or nonmetro areas not adjacent to metro areas, tends to specialize in a particular service-producing category and market (export) some of the service outside the area.[3] Quotients less than 1 suggest that the industry is underrepresented in the county group and imports the service.

Definition of Service Industries

We currently lack sufficient detail in census and administrative sources to examine the service industry as rigorously or in as much detail as we would like. Like others, we have taken the conventional approach of classifying services as everything other than extractive industries (agriculture, mining, forestry, fisheries) and transformative industries (manufacturing and construction) (20, 21). We have grouped service-producing industries into five categories by type of consumption (or market). This classification is a modification of one first developed by Singlemann (17, p. 31). The five industry groups are: consumer services, social services, government, producer services, and distributive services. The 2-digit SIC (Standard Industrial Classification) service industries included in each group are shown in appendix table 1. The major market for producer services, by definition, is other businesses. The output of distributive services (transportation, public utilities and wholesale trade) is also closely linked to the output of other businesses. The market for consumer services is private households. The demand for social services depends on both private and government expenditures. And finally, the level of government employment depends on the political process. With this system, we can describe how growth and employment shares in highly aggregated service categories exhibit common locational patterns according to the level of urbanization.

---

[3] The employment location quotient compares industry shares of employment at the county or multi-county level with national shares by means of a ratio. It has well-known limitations. First, it does not take into account labor productivity differences between areas. For example, a high location quotient could mean that a relatively large proportion of the total workforce in an area is employed in an industry that markets the service locally and does not export. Second, consumption patterns vary among areas and this could result in a location quotient that does not reflect trade activity. Third, aggregation of employment into broad industry categories and county groupings conceals many activities that are almost totally exported.

Growth and Locational Orientation of Services

Nonmetro employment growth has slackened considerably in recent years (table 1--see tables at end of chapter). During 1976-84, it increased at an annual average rate of only 1.3 percent, down from 2.1 percent during 1969-76. The nonmetro rate unexpectedly fell almost 1 percentage point below the metro rate in the more recent period from almost 1 percentage point above it in the earlier period.

Structural change toward a greater dependence on services and a reduced dependence on goods production was more evident in metro than nonmetro areas. The share of metro employment in service-producing industries increased almost 8 percentage points from 68 percent in 1969 to 76 percent in 1984, whereas the nonmetro share in these industries increased less than 4 percentage points to 67.5 percent in 1984. This key difference in the industrial structure of the two types of areas can be seen even more clearly by noting that goods production accounted for almost 32 percent of 1984 employment in nonmetro areas and only 24 percent in metro areas.

Overview of the Two Periods

Employment grew faster in nonmetro than metro areas in 1969-76. Nonmetro expansion of employment in goods production, 1.4 percent annually, was complemented by an annual growth of employment in service industries of 2.5 percent. By contrast, metro employment in goods production declined at an annual rate of 1.1 percent. Nevertheless, employment in service industries in metro areas continued to expand at an annual rate of 2.2 percent.

Driven by the rapid growth of employment in the goods-producing industries, employment in business and consumer services expanded rapidly in nonmetro areas between 1969 and 1976 (table 2). Employment in producer, distributive, and social services expanded at a faster annual rate in nonmetro than metro areas. The rate of service employment expansion was even faster in nonadjacent nonmetro areas where employment in goods production, particularly in extractive industries, also grew at a fast pace. Employment in consumer services and government increased at about the same rate in nonmetro and metro areas.

Employment grew slower in nonmetro than metro areas in 1976-84 (table 1). Nonmetro employment growth in goods production came to a virtual halt after 1976, with the average annual growth rate declining by 1.3 percentage points from the 1969-76 rate. In service industries, the reduction in the growth rate was only half as large; nevertheless that was almost 1 percentage point lower than the metro rate in service industries.

In nonmetro areas, growth rate reductions of 4.2 percentage points in social services, 2.7 percentage points in distributive services, and 0.7 percentage point in government more than offset growth rate increases in producer and consumer services (table 2). Except for government, employment in all major categories of services grew at lower annual rates in nonmetro than metro areas.

The 1969-84 trend clearly shows that nonmetro areas have not kept up with metro areas in service employment growth. Nonmetro service employment, closely corresponding to the pace of expansion in the basic or goods-producing sector, first expanded rapidly and then slowed down in 1969-84. But, service employment continued to grow rapidly in metro areas, even though employment in basic goods industries declined during 1969-76 and increased only slowly during 1976-84. Growth in nonmetro services thus appears to have been closely linked to the expansion of goods-producing industries, particularly during the early 1970's. By contrast, while service growth in metro areas did benefit from the recovery of the goods-producing sector after 1976, much of the growth must be attributed to other factors. Throughout the 1969-84 period, the metro service sector tended to take off independently of the basic goods sector and set its own course of rapid growth. The nonmetro service sector may eventually follow the same course, but since 1976 it has fallen behind the pace of metro service industries.

The slower rate of employment growth in producer and distributive services in nonmetro areas after 1976 reflects the growth rate reduction in the traditional rural export base. Services provided by banks, realtors, trucking firms, and warehousing firms that supported rapid expansion in agricultural, manufacturing, and energy-related industries were less in demand after 1976 as world markets for agricultural and energy-related products shrank and nonmetro areas lost their competitive locational advantage in low-wage, labor-intensive manufacturing to foreign countries.

The more rapid growth of employment in producer services in adjacent, nonmetro areas after 1976 may be related, in part, to the expansion of metro export-oriented industries. Many firms that provided producer services in urban areas may have relocated and expanded employment in adjacent nonmetro areas.

Much of the nonmetro growth in producer and consumer services, however, was influenced by the growth in residential and local business demand which had been steadily building up in the 1970's. These services expanded primarily to catch up with the requirements of a growing population and work force.

Locational Orientation of Services

The shift from goods to services has had its major impact on metro economies. Unlike goods production, service activities have tended to concentrate in large cities. As shown by location quotients greater than 1 (table 3), three of the five major categories of services (producer, distributive, and social) are concentrated in the largest metro counties. Smaller urban places appeared to be less specialized in these broad categories of services. The location quotients decline to less than 1 as the level of urbanization declines from the largest urban counties to nonadjacent, nonmetro counties. The location pattern reverses for goods production and government, however, to favor nonmetro counties. Extractive industries, as expected, were clearly dominant in nonadjacent, nonmetro counties, manufacturing industries in small metro and adjacent nonmetro counties. Government also seems to have a larger presence away from metro areas, but this may be due to a misinterpretation of the employment location quotients. There are significant economies of scale in the provision of government services which may cause location quotients to understate their importance in urban areas and overstate their importance in rural areas (11). Consumer services were generally found everywhere as indicated by invariant location quotients (approximately equal to 1) across the four county groups.

Further, comparisons of employment location quotients over the 1969-84 period (not presented here) do not show improvement in nonmetro area's position in producer, distributive, and social services. The location quotients in 1984 (table 3) were at approximately the same level as in 1969 for each major category of services. The manufacturing and construction quotients, however, were substantially lower in 1984.

The urban-rural pattern of location can be seen much more clearly in table 4, which shows the service sector disaggregated to the 2-digit SIC level. At this level of disaggregation, service industries appear to be poorly represented in nonmetro areas. Of 45 service industries, only 10 had a relatively high profile in rural areas (location quotients greater than 1) and seven of these were residentially oriented such as:

- foodstores,
- auto dealerships and gas stations,
- public utility companies,
- State and local government offices,
- combinations of real estate, loan, insurance, and law offices,
- private households (maids, cooks, gardeners), and
- hardware stores, lumberyards, and mobile home dealers.

The other three industries can be identified as possibly providing services to export-oriented activities in nonmetro areas:

- agricultural service activities (crop services, fertilizer, and pest control firms)
- railroad activities (grain and livestock terminals), and
- gasoline and oil pipeline operations.

None of the two-digit service industries can be identified as exporting services directly to metropolitan areas. Most service industries (28 of 45) were concentrated (location quotients greater than 1) in urban or large urban areas. Highly specialized services, such as those provided by security and commodity brokers, large financial and insurance institutions, and specialized legal, accounting, and data processing firms, were found almost exclusively in large urban areas. A wide range of other activities, such as banking, large department stores, and specialty retail and repair shops, also appeared to be more oriented to urban than rural locations. Transportation service facilities and wholesale trade operations were primarily urban-oriented as well.

Restaurants, hospitals, and motels were generally found in both rural and urban areas. Their locations appear to be more ubiquitous than either the group of 28 specialized urban service industries or the small group of residential rural services.

The concentration of services in urban areas seems to be a well-established fact in the United States. Our data support the theory of an urban hierarchy of services that assumes that large cities specialize in a wider range of service activities than small, nonmetro places. According to central place theory, we would expect large urban areas to specialize in more service activities than small, nonmetro areas do. Thus, we would expect that as city size increases:

- Family incomes increase and consumers demand a greater variety of services (for example, more two-earner families use restaurants, day care centers, and other personal services).

- Agglomerations of corporate headquarters and other administrative facilities increasingly hire specialized business services that can be obtained at less cost than if they provided them themselves.

- Generalized, multi-service activities are taken over by more specialized restricted lines of services such as brake repair specialists, law firms, specialty retail outlets, and so on.

Conclusions and Policy Implications

Two hypotheses implied by previous studies and further examined in this paper are critical to arguments concerning the role services may play in rural development. The first is that the rural service economy depends on traditional, basic goods production and other industries attracted by the natural amenities of rural areas (recreation and retirement). The second hypothesis concerns the location of services; that is, that services will continue to centralize in and around cities, unless changes in communications and information technologies weaken the ties of service production to major population centers and cause them to decentralize.

With regard to the first hypothesis, the data clearly show that services employment increased much faster than goods-producing employment everywhere. However, nonmetro service growth did not keep pace with metro service growth over the 1969-84 period, and sluggish growth in goods-production since 1976 appears to be one of the reasons why.

The second hypothesis, that services are generally urban-oriented activities also is supported by our data. Employment shares in most service industries increased with urbanization. Except for service industries catering to consumers (consumer services) and a few service industries linked to the traditional economic base, most service industries were not oriented to nonmetro areas. Thus far, there is little evidence that services have loosened their ties to big cities and have begun to decentralize to rural sites.

It is premature to conclude that services will decentralize to rural areas in the near future. We must reserve judgment on this question until the revolution in communications and information technology has advanced much further. It might be more realistic to consider rural services as playing a passive role in rural growth (1). Although demand for consumer services in rural areas will continue to benefit from changes in demography, income, and tastes, overall demand will continue to depend heavily on the expansion of basic manufacturing, retirement, and recreation activities. Services should be considered in rural development plans for traditional reasons as a part of the nonbasic sector driven by expansion of the basic sector.

Over a longer time span, however, rural service employment might be linked to a long wave of development, one that parallels but always lags behind the urban cycle. This process is analogous to the filtering down or life cycle process for manufactured goods, wherein urban manufacturing industries relocate to rural areas to take advantage of lower labor costs after they mature and their production processes become standardized (3). Urban areas generally tend to be in a more advanced phase of industrial development, with new technologies being developed and applied in service industries to meet the rapidly changing requirements of urban households and businesses.

If this hypothesized process in fact corresponds to reality, a transitional policy that lends temporary support to the rural economy may be the best approach. Given the long-term course of development, rural areas eventually could move into a new industrial phase similar to that of the 1960's and early 1970's in which low-wage manufacturing shifted from urban to rural areas. Urban-based corporations in the service sector could seek low-wage rural sites, free of urban congestion and abundant in rural amenities for their auxiliary operations. Once this process begins, the dispersion could be rapid for some export-oriented service industries. Because of continuing improvements in communications, transportation, and the new information technology, urban-oriented service industries, that (for example) deliver information services, may be able to move swiftly from an innovative phase to a mass delivery and decentralization phase. Service industries would tend to locate in major population centers during the innovative phase so they could develop and market new services, better assume necessary risks, hire the requisite professional, managerial and skilled labor, and grow rapidly. As the new industries mature, their markets would expand and they would attempt to hold wage rates down by replacing the skilled jobs created during their developmental phase with less skilled jobs through task division. This could mean more auxiliary service functions, outlets, and subcontractors at suburban and close-in nonmetro areas.

Rural officials should not be misled into thinking that they can create an export-based service economy overnight. Instead, they should consider developing the local economy by substituting local services for those previously sought outside the community while waiting for traditional goods-producing industries to recover from their current difficulties, or by building up new outside sources of income by attracting retirees or tourists.

Over the long term, telecommunications and the new information technologies may make it possible for some urban-oriented services to decentralize to nonmetro areas. The most likely shift at this stage appears to be export-oriented business services moving to rural areas adjacent to the major urban centers where headquarters, other administrative facilities, and attendant producer services tend to agglomerate.

References

1. Bender, Lloyd D. "The Role of Services in Regional Development Policies," *Land Economics*, vol. 62, no. 1, Feb. 1987, pp. 62-72.

2. Beyers, William B., and Michael J. Alvine. "Export Services in Postindustrial Society," *Papers and Proceedings of the Regional Science Association*, vol. 57, 1985, pp. 31-45.

3. Blackley, Paul R. "Urban-Rural Variations in the Structure of Manufacturing Production," *Urban Studies*, vol. 23, no. 6, Dec. 1986, pp. 471-83.

4. Cocheba, Donald J., Robert W. Gilmer, and Richard S. Mack. "Data Refinement Recommendations and Their Impact on a Study of the Tennessee Valley," *Growth and Change*, vol. 16, no. 4, Oct. 1985, pp. 20-42.

5. ________. "Causes and Consequences of Slow Growth in the Tennessee Valley's Service Sector," *Growth and Change*, vol. 17, no. 1, Jan. 1986, pp. 51-65.

6. Daniels, P. W. *Service Industries: A Geographical Appraisal*. New York: Methuen, 1985.

7. Duncan, Otis D. "Service Industries and the Urban Hierarchy," *Regional Science Association (Proceedings)*, vol. 5, 1959, pp. 22-32.

8. Fuchs, Victor. *The Service Economy*. New York: Columbia Univ. Press, 1968.

9. Garnick, Daniel H. "Shifting Balances in U.S. Metropolitan and Nonmetropolitan Area Growth," *International Regional Science Review*, vol. 9, no. 3, 1984, pp. 257-73.

10. ________. "Patterns of Growth in Metropolitan and Nonmetropolitan Areas: An Update, "*Survey of Current Business*, May 1985 pp. 33-38.

11. Keil, Stanley R., and Richard S. Mack. "Identifying Export Potential in the Service Sector," *Growth and Change*, vol. 17, no. 2, April 1986, pp. 1-10.

12. Leven, Charles L. "Regional Development Analysis and Policy," *Journal of Regional Analysis*, vol. 25, no. 4, Nov. 1985, pp. 569-92.

13. North, Douglass C. "Location Theory and Regional Economic Growth," *Journal of Political Economy,* vol. 63, June 1955, pp. 243-58.

14. Nourse, Hugh O. *Regional Economics*. New York: McGraw Hill, 1968.

15. Noyelle, Thierry J. "The Rise of Advanced Services: Some Implications for Economic Development," *Journal of the American Planning Assoc.*, vol. 49, no. 3, Summer 1983, pp. 281-90.

16. Polese, Mario. "Regional Demand for Business Services and Interregional Service Flows in a Small Canadian Region," *Papers and Proceedings of the Regional Science Association*, vol. 50, 1982, pp. 151-63.

17. Singlemann, J. *From Agriculture to Services*. Beverly Hills, CA: Sage Publications, 1979.

18. Smith, Stephen M. "Export Orientation of Nonmanufacturing Businesses in Nonmetropolitan Communities," *American Journal of Agricultural Economics*, vol. 66, no. 2, May 1984, pp. 145-55.

19. ________, and Glen C. Pulver. "Nonmanufacturing Business as a Growth Alternative in Nonmetropolitan Areas," *Journal of the Community Development Society*, vol. 12, no. 1, 1981, pp. 33-47.

20. Stanback, Thomas M., Jr. *Understanding the Service Economy, Employment, Productivity, Location*. Baltimore: Johns Hopkins Press, 1979.

21. ________, and Thierry J. Noyelle. *Cities in Transition*. Totowa, NJ.: Allanheld Osmun and Co., 1982.

Table 1 — Change in nonfarm wage and salary employment in goods-, and service-producing industries, metro and nonmetro counties, 1969-84 1/

County type and industry group	Employment in 1969	Change in employment				Share of employment		
		1969-76		1976-84				
		Number	Rate	Number	Rate	1969	1976	1984
	— Million —		Pct.	Mil.	- - - - - Percent - - - - -			
United States:								
Goods-producing	25.8	-0.9	-0.5	1.1	0.5	32.9	28.8	25.7
Service-producing	52.6	8.7	2.2	13.8	2.6	67.1	71.2	74.3
Total	78.4	7.8	1.4	14.9	2.0	100.0	100.0	100.0
Metropolitan:								
Goods-producing	20.2	-1.5	-1.1	1.0	.7	31.8	27.1	24.1
Service-producing	43.4	7.0	2.2	12.0	2.7	68.2	72.9	75.9
Total	63.7	5.5	1.2	13.1	2.2	100.0	100.0	100.0
Nonmetropolitan:								
Goods-producing	5.5	.6	1.4	0	.1	37.4	35.8	32.5
Service-producing	9.2	1.7	2.5	1.8	1.9	62.6	64.2	67.5
Total	14.7	2.3	2.1	1.8	1.3	100.0	100.0	100.0

1/ Metropolitan counties are those which were in Metropolitan Statistical Areas (MSA's) designated by the Office of Management and Budget as of 1983. All other counties are nonmetropolitan. Rates of change are compounded annual rates. Detail on employment may not add exactly to totals due to rounding.

Source: Compiled from county data provided by the Bureau of Economic Analysis, U.S. Department of Commerce.

Table 2 — Rates of change in nonfarm wage and salary employment, selected groups of industries, metro and nonmetro counties, 1969-76 and 1976-84 1/

Industry group and period 2/	United States	Metropolitan counties or areas	Nonmetropolitan counties		
			Total	Adjacent to metro areas	Nonadjacent to metro areas
			Percent		
Goods-producing:					
Extractive—					
1969-76	2.5	2.5	2.5	2.3	2.6
1976-84	- .4	.5	-1.2	-1.2	-1.2
Manufacturing & construction—					
1969-76	- .8	-1.2	1.1	.7	1.6
1976-84	.6	.7	.4	.5	.3
Service-producing:					
Producer—					
1969-76	2.6	2.5	3.3	3.1	3.4
1976-84	4.7	4.9	3.6	3.9	3.4
Distributive—					
1969-76	1.6	1.2	4.2	3.9	4.5
1976-84	2.0	2.1	1.5	1.7	1.2
Consumer—					
1969-76	1.5	1.6	1.4	1.2	1.6
1976-84	2.6	2.8	1.9	2.0	1.8
Social—					
1969-76	7.5	7.4	8.2	7.6	8.8
1976-84	4.1	4.1	4.0	4.1	3.9
Government—					
1969-76	1.5	1.5	1.6	1.7	1.6
1976-84	.8	.8	.9	.9	.9

1/ Metropolitan counties are those which were in Metropolitan Statistical Areas (MSA's) designated by the Office of Management and Budget as of 1983. All other counties are nonmetropolitan. Rates of change are compounded annual rates.

2/ The two-digit SIC industries included in each industry group are shown in appendix table 1.

Source: Compiled from county data provided by the Bureau of Economic Analysis, U.S. Department of Commerce.

Table 3 — Employment shares and location quotients for selected groups of industries, metro and nonmetro areas, 1984

Urban orientation and industry	Share in all areas 2/	Metropolitan areas 1/				Nonmetropolitan counties 1/			
		With over a million people		With a million or fewer people		Adjacent to metro area		Nonadjacent to metro area	
		Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/
	- Percent -		No.	Pct.	No.	Pct.	No.	Pct.	No.
Large urban area oriented:									
Producer services	13.8	17.3	1.25	12.0	0.87	7.3	0.53	7.7	0.56
Urban area oriented	19.3	21.3	- -	18.4	- -	15.1	- -	16.1	- -
Distributive services	10.6	12.0	1.13	9.8	.93	7.7	.72	8.9	.84
Social services	8.7	9.3	1.07	8.6	.99	7.4	.85	7.2	.83
Rural area oriented	44.3	39.4	- -	46.3	- -	55.8	- -	53.2	- -
Extractive	2.1	.8	.37	1.9	.88	5.4	2.51	6.8	3.18
Government	18.7	16.6	.89	20.2	1.08	21.2	1.13	22.5	1.20
Mfg. & construction	23.5	22.0	.93	24.2	1.03	29.2	1.24	23.9	1.01
Ubiquitous									
Consumer services	22.5	22.1	.98	23.2	1.03	21.8	.97	22.9	1.02
Total	100.0	100.0	- -	100.0	- -	100.0	- -	100.0	- -

- - = not applicable.

1/ Metropolitan counties are those which were in Metropolitan Statistical Areas (MSA's) designated by the Office of Management and Budget as of 1983. All other counties are nonmetropolitan.

2/ Shares may not add exactly to 100.0 due to rounding.

3/ Location quotients (LQ's) measure the representation of an industry in a specific group of counties such as large metro areas or nonadjacent nonmetro counties. Industries with LQ's greater than 1 could be considered overrepresented in a particular group of counties and these with LQ's of under 1 as underrepresented. Location quotients are calculated by dividing the shares of total employment for a group of areas by the shares for the United States as a whole. For example, the LQ's in column 3 were obtained by dividing the numbers in column 2 by the numbers in column 1. The LQ's presented are for 1984, the most recent year covered in the study. The pattern of LQ's across the four county groups in 1984 is approximately the same as was in 1969, except for construction and manufacturing where LQ's for the two groups of nonmetro counties were significantly lower in 1984 than in 1969.

Source: Compiled from county data provided by the Bureau of Economic Analysis, U.S. Department of Commerce.

Table 4 — Employment shares and location quotients for selected groups of service-producing industries, metro and nonmetro areas, 1984

Urban orientation and industry group (SIC)	Share in all areas 2/	Metropolitan areas 1/				Nonmetropolitan counties 1/			
		With over a million people		With a million or fewer people		Adjacent to metro area		Nonadjacent to metro area	
		Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/
	- Percent -		No.	Pct.	No.	Pct.	No.	Pct.	No.
Large urban area oriented:									
Sec. & commodity brokers (62)	0.3	0.6	1.69	0.2	0.46	0	0.09	0	0.12
Air transportation (45)	.5	.8	1.58	.3	.58	.1	.15	.1	.21
Motion pictures (78)	.2	.3	1.48	.1	.57	.1	.39	.1	.56
Transportation services (47)	.3	.4	1.46	.2	.69	.1	.30	.1	.31
Business services (73)	4.0	5.6	1.39	3.3	.81	1.2	.30	1.2	.29
Museums (84)	0	.1	1.39	0	.78	0	.45	0	.28
Holding inv. companies (67)	.1	.2	1.38	.1	.81	0	.33	0	.33
Misc. services (89)	1.1	1.5	1.35	.9	.80	.4	.39	.5	.46
Legal services (81)	.6	.8	1.30	.5	.80	.3	.51	.4	.56
Water transportation (44)	.2	.2	1.30	.1	.72	.1	.62	.1	.76
Insurance carriers (63)	1.3	1.7	1.30	1.3	.98	.4	.27	.3	.23
Real estate (65)	1.2	1.5	1.29	1.0	.84	.6	.48	.6	.54
Prvt. educational sv. (82)	1.4	1.7	1.24	1.2	.88	.9	.68	.6	.47
Urban oriented:									
Nonbank credit agencies (61)	.7	.8	1.18	.7	.94	.4	.63	.4	.61
Insurance agents (64)	.5	.6	1.17	.5	.90	.4	.69	.4	.76
Wholesale trade	5.5	6.4	1.17	5.0	.91	3.6	.65	4.3	.78
Passenger transportation (41)	.3	.3	1.17	.3	.94	.2	.73	.2	.59
Communications (48)	1.3	1.6	1.17	1.3	.94	.8	.60	1.0	.73
Auto repair & garages (75)	.7	.8	1.14	.7	1.00	.4	.62	.4	.65
Banking (60)	1.7	1.9	1.14	1.4	.84	1.5	.87	1.6	.94
Misc. repair serv. (76)	.3	.4	1.13	.3	.94	.2	.74	.2	.79
Apparel & accessories (56)	1.0	1.1	1.12	1.0	.98	.7	.65	.8	.78
Federal civilian govt.	3.0	3.3	1.10	2.9	.98	2.2	.73	2.4	.81
Personal services (72)	1.0	1.1	1.07	1.1	1.05	.7	.72	.7	.74
Misc. retail stores (59)	2.1	2.2	1.05	2.1	1.00	1.8	.86	1.8	.87
Furniture & furnishings (57)	.7	.7	1.05	.7	1.04	.5	.76	.6	.85
Amusement services NEC (79)	.8	.9	1.05	.9	1.06	.6	.79	.6	.78
Retail, gen. merchandise (53)	2.2	2.3	1.02	2.4	1.08	1.8	.78	1.8	.82

- - Continued

Table 4 — Employment shares and location quotients for selected groups of service-producing industries, metropolitan and nonmetropolitan areas, 1984 - - continued

Urban orientation and industry group (SIC)	Share in all areas 2/	Metropolitan areas 1/				Nonmetropolitan counties 1/			
		With over a million people		With a million or fewer people		Adjacent to metro area		Nonadjacent to metro area	
		Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/	Share of employment 2/	L Q 3/
	- Percent -		No.	Pct.	No.	Pct.	No.	Pct.	No.
Ubiquitous and n.e.c.:									
Social services (83)	1.2	1.3	1.06	1.2	0.96	1.1	0.92	1.1	0.91
Med. and other health sv. (80)	6.1	6.2	1.02	6.2	1.03	5.4	.88	5.5	.90
Eating & drinking places (58)	5.4	5.4	1.00	5.6	1.05	4.8	.90	5.1	.94
Trucking & warehousing (42)	1.3	1.2	.94	1.4	1.09	1.2	.95	1.4	1.07
Membership organization (86)	1.6	1.6	1.03	1.7	1.03	1.2	.77	1.5	.96
Federal military services	2.7	2.1	.78	3.4	1.29	2.5	.92	3.3	1.22
Hotels & lodging places (70)	1.3	1.1	.85	1.4	1.13	1.2	.93	1.8	1.38
Rural oriented:									
Foodstores (54)	2.6	2.5	.93	2.7	1.03	3.0	1.15	2.9	1.11
Auto deal., gas station (55)	1.8	1.6	.90	1.9	1.05	2.1	1.18	2.2	1.21
Elec., gas, sanitary sv. (49)	.9	.8	.88	.9	1.02	1.2	1.32	1.1	1.27
Combined r.e., ins., etc. (66)	.0	.0	.86	.0	1.00	0	1.25	.0	1.45
State & local Government	13.1	11.3	.86	13.8	1.06	16.6	1.26	16.8	1.29
Building materials, etc. (52)	.7	.6	.86	.7	1.05	.8	1.23	.9	1.37
Agricultural services (7)	.6	.4	.75	.6	1.14	.8	1.51	.7	1.33
Railroad transportation (40)	.4	.3	.80	.4	1.06	.4	1.09	.4	1.70
Private households (88)	1.7	1.3	.74	1.7	.97	3.0	1.78	2.9	1.68
Pipeline transportation (46)	0	0	.61	0	1.17	0	1.15	0	2.29

See footnotes to table 3.

Source: Compiled from county data provided by the Bureau of Economic Analysis, U.S. Department of Commerce.

Appendix table 1— Two-digit SIC industries indicated in each industry group used in the study 1/

Industry group and constituent 2-digit industry	2-digit SIC code	Industry group and constituent 2-digit industry	2-digit SIC code
Extractive:		Government:	
Agriculture, forestry,	01-06	Federal civilian	
fishing, and mining	08-14	Federal military	
Manufacturing,	20-39	State and local	
and construction	15-17		
		Producer services:	
Consumer services:		Agricultural services	07
Bldg. materials, etc.	52	Banking	60
Retail gen. merchandise	53	Nonbank credit agencies	61
Food stores	54	Security, commodity brokers	62
Auto deal., gas stations	55	Insurance carriers	63
Apparel & accessories	56	Insurance agents	64
Furn. & furnishings	57	Real estate	65
Eating & drinking places	58	Combined real estate, insurance, etc.	66
Misc. retail stores	59	Holding inv. companies	67
Hotels & other lodging places	70	Misc. businesses services	73
Personal services	72	Legal services	81
Auto rpr., serv., garages	75	Miscellaneous services	89
Misc. repair services	76		
Amusement services 1/	79	Distributive services:	
Motion pictures	78	Wholesale trade	50,51
Private households	88	Railroad transportation	40
		Trucking & warehousing	42
Social services:		Water transportation	44
Medical & other health sv.	80	Transportation by air	45
Prvt. educational services	82	Pipeline transportation	46
Social services	83	Passenger transit	41
Museums	84	Transportation services	47
		Communications	48
		Elec., gas. & sanitary sv.	49

1/ Not elsewhere classified.

CHAPTER 7

HUMAN RESOURCE BASE OF RURAL ECONOMIES

Linda L. Swanson and Margaret A. Butler

Abstract. Nonmetro counties are at a disadvantage with regard to its labor force. Due largely to outmigration of young people, the nonmetro United States has a lower proportion of people in the prime working ages of 20-44 than do metro areas. Discouraged workers and high levels of work-preventing disabilities have contributed to the lower rate of nonmetro labor force participation. In addition, nonmetro residents, particularly in the South, are less educated, as indicated by higher high school dropout rates, fewer years of schooling among adults, and a lower proportion of college-educated adults.

Agricultural mechanization triggered an outmigration, mostly of young people, from rural areas, beginning in the late 1890's and lasting through the first half of the 20th century (1, 2).1/ To replace the loss of agricultural employment opportunities, rural areas tried to encourage industry to locate there.

Industry has expanded into the countryside, but less because of local efforts than because of a search for lower land values, cheaper and often nonunion labor, the interstate highway systems linking rural and urban areas, and communications systems making physical proximity less important (11). Service and recreation industries have also found rural (nonmetropolitan) areas appealing. The result for many areas: increased employment opportunity and reduced dependence on traditional forms of rural employment, such as agriculture, forestry, and mining.

The increasingly diversified nonmetro economy made it possible for many urban people to move to nonmetro areas, (and they did so at an unprecedented rate in the 1970's), yet, noneconomic reasons (12, 10) were largely behind this movement, which ended in the early 1980's as quietly as it began (5). During the sudden rural growth of the 1970's it was clear that the migration of rural youth to metro areas slowed but never ceased despite increased job opportunities and growth in many rural communities (7).

Linda Swanson is a sociologist and Margaret Butler is an economist in the Agriculture and Rural Economy Division, ERS.

1/ Underscored numbers in parentheses refer to sources listed in the References section at the end of the chapter.

Responses to questionnaires given to high school seniors in nonmetro areas on their intentions after high school showed that the movement of industry into nonmetro areas was successful in only a limited number of situations in convincing the students to remain in their own hometown to work after finishing school (9).

These young people are likely to be accurate in their perception that metro jobs pay better than those they can find in a nonmetro area. Unfortunately, because of lower education levels of most nonmetro youths, they will tend to be at a disadvantage with metro youths in competing for the best metro jobs (9).

The pull of a wider world of opportunities may be too strong to stem the outmigration of talented young people from rural areas (3). Those who leave are more likely than those who stay to be young, well-educated, and working in a white collar job (8).

The attraction of people to rural areas is not primarily economic. Because of their size, most metro areas have an efficient network of industries and businesses that cannot be matched in a nonmetro area. A large proportion of young, well-educated people will always be attracted to the economic opportunities of metro areas.

Nevertheless, many people who choose to live in less populated areas find a pace and style of life that for them outweighs the greater economic opportunities of a metro area. Those who make this choice should not become victims of neglect in public policy. Local and Federal Government attention should be paid to fostering sufficient economic opportunity in these areas to keep poverty and unemployment low. Job opportunities and higher wages in nonmetro areas would not only slow outmigration and attract new residents, but would provide incentive for increased education among nonmetro residents.

The first step in fostering economic opportunity is to assess the current status of the nonmetro labor supply. The current regional distribution of human resources as they apply to labor supply is described and the likely future distribution if current migration patterns persist, based on age structure and migration trends, is projected. The analysis shows how the characteristics of the labor supply differ from those in metro areas, and how nonmetro areas differ from each other in the Northeast, Midwest, South and West.

County-level data from the 1980 decennial census and individual responses from the 1986 Current Population Survey were used. These data facilitated an assessment of job-related characteristics of the population of labor force age, the extent of work-related restrictions, and the future labor supply based on the age composition and population stability of an area.

Nonmetro Areas Short on Young Adults

Adults aged 25-34 form perhaps the most promising part of the U.S. labor force. Career training usually completed, with several years of work experience to their credit, these young adults will be the ones to move up the ranks in the next 20 years as the decisionmakers and backbone of the economy. Income that they generate will support the dependent population, primarily children and the elderly.

By 1980, most of the baby boom generation were young adults in this 25-34 age group (table 1--see tables at end of chapter). To the end of the century, the United States will have a balanced dependency ratio in part because of the size of that group; the number of people of income-producing age (18-64 years) will be large relative to children and elderly. Nonmetro areas are at a disadvantage, however. They have a significantly lower proportion among potential workers (those age 16 and over) of young people and adults between the ages of 20 and 44 and significantly higher proportions of those over 64 than do metro areas. [2] Of nonmetro potential workers, baby boomers aged 25-34 only narrowly outnumber retirement-age people, those over 64 years old (19.8 percent vs. 17.6 percent, respectively), while in metro areas baby boomers outnumber retirement-age people by quite a wide margin (22.3 percent vs. 14.2 percent, respectively).

A similar pattern occurs in each of the four regions, with the nonmetro part of some regions, notably the Midwest, worse off than others (table 1). In the nonmetro Midwest, the proportion of people aged 65 years and older roughly equals the proportion 25-34 years old as a result of the constant movement of young people from the Farm Belt. Somewhat ameliorating this imbalance is the fact that the Midwest boasts the highest nonmetro labor force participation rate among people over 64.

The largest concentration of baby boomers is in the West where they constitute 23.9 percent of the metro population and 22.7 percent of the nonmetro population. Compared with the other regions, the West has the smallest percentage of residents over age 64 in both metro and nonmetro areas, due largely to its attraction to young adults. If the West continues to attract and retain young adults, it will clearly be the region with the healthiest economic position by having a large pool of potentially productive young workers with a fairly small proportion of children and elderly to support.

Nonmetro Areas Lose People to Metro Areas in the 1980's

Although more people moved from metro areas into nonmetro areas than in the opposite direction in the 1970's, trends of the 1980's have reverted to the more familiar pattern of net population loss for nonmetro areas. Estimates from Census sample data (the Current Population Survey) placed the net loss for nonmetro areas due to migration to metro areas at 351,000 between 1983 and 1984 and at 632,000 in 1985-86.

---

[2] All metro-nonmetro or regional differences discussed have been measured using a difference of means or Chi-square test (6) and found to be significantly different.

To understand more about the nature of this loss, we calculated net migration rates for 1985-86 for the nonmetro portions of each region according to whether the exchange was with metro areas within the region or outside the region. The migration rates were also assessed by age group and by educational level to determine if nonmetro areas were left poorer in terms of a youthful, well-educated work force.

The highest rates of gross migration and of net migration loss for nonmetro areas in all regions occurred in the exchange with the nearby metro areas of the same region. Age-specific net migration rates showed that for all regions, nonmetro areas had the heaviest net loss among adults under age 25 (table 2). In part, the high rate of loss of people age 20-24 to metro areas, particularly metro areas in the same region, was due to the graduation of college students originally from metro areas.

The pattern of loss varied among regions. The nonmetro Midwest had the smallest loss of young people age 16-19 and was the only region to experience no loss of adults age 25-34 to the metro areas within the region. In view of the farm crisis of the early 1980's and the concentration of family farms in the Midwest, this is a strong rate of retention fostered in part by the difficulty farmers face in pulling up stakes when their land is hard to sell, and also in part by the depressed economy of midwestern metro areas with economic ties to the surrounding rural areas.

Northeastern nonmetro areas showed the highest rates of loss across all age groups to metro areas both within and outside the region. The loss of adults age 25-34 by northeastern nonmetro areas to metro areas in the region was nearly as high as the loss of young people age 20-24, the age group most likely to have a high rate because of college graduation.

Although the nonmetro South lost young adults under age 35 to southern metro areas, it showed a small gain of people aged 45-64. Many of the adults in this age range are near the end of their working lives but still affect the potential productiveness of additions to the nonmetro South's work force.

While the West's rate of nonmetro loss to the region's own metro areas was not as great as the Northeast's, the pattern was much the same. The loss of people was heaviest among adults under 35, with smaller but significant losses of middle-aged adults 35-54. Such loss diluted the nonmetro West's advantage over the other regions in having a high proportion of its population as young or middle-age adults.

Education Enhances Adaptability

Education plays a fundamental role in shaping a population's ability to devise new solutions to problems, adapt to change, and learn the skills necessary for a variety of jobs. The education level of adults in an area provides a picture of how versatile the existing labor force can be for companies searching for a good location. An industry will often locate in a nonmetro area only to import many of the upper echelon workers from other areas, leaving the lower level jobs to long-term community residents (4). Higher levels of education in a nonmetro area enhance the population's chance of meeting economic challenges, knowing how to create or attract new jobs, and competing for higher paying jobs.

We measured the 1980 level of education in three ways. For adults aged 25 or older, we examined average education in terms of years of school completed, as well as the percentage of the population that completed 4 or more years of college. For young people age 16 to 21, we looked at the high school dropout rate.

Nonmetro Behind Metro in Education

By all three education measures, nonmetro areas trailed metro areas (table 3). The average education for adults in nonmetro counties was 10.9 years, versus 11.6 years for metro adults. In addition, the high school dropout rate for young people was 16.9 percent for nonmetro counties, compared with 15 percent for metro counties. Higher nonmetro dropout rates foretell a continuing disparity in education levels between metro and nonmetro areas. At the upper end of the education scale, nonmetro areas trailed metro areas in the percentage of college-educated adults, with an average of 9.2 percent in nonmetro counties and 12.8 percent in metro counties. As a basic tool of the work force, nonmetro education needs to be upgraded in any plan to increase nonmetro economic opportunity.

Low levels of average education were most concentrated in specific areas of the nonmetro South (fig. 1--see figures at end of chapter). Appalachia contained a solid block of counties with low average education. In the Great Smokies and Blue Ridge Mountains and to the east of the Appalachian Mountains, with somewhat better farmland, sits a less concentrated band of low-education counties. Both of these areas have a primarily white population.

East of the Blue Ridge chain, in south-central Virginia and northeastern North Carolina, sits a cluster of low-education counties, with primarily black populations. The economy of this cluster centers on tobacco and peanut farming. In the southern and central portions of Georgia and Alabama sits another group of low-education counties scattered throughout the Coastal Plain, an old cotton-farming region with a large proportion of blacks.

Also low in education was the Mississippi River Delta, the fertile farmland between Arkansas and Mississippi, running down into northern Louisiana. The population there is comprised primarily of blacks, many of whom are farmworkers. Just north of the Delta lies a group of low-education counties populated by white inhabitants of the Ozarks. In the southern foot of

Louisiana is a group of low-education counties whose residents are both black and white and dominated by the Louisiana French culture. Southwestern Texas has a large block of primarily Hispanic counties with low average education.

The largest concentrations of low nonmetro education in 1980 were in counties with a high minority population. The notable exception here is the white population of Appalachia. Low average education of adults over 25 points to an ingrained problem, one that has persisted over several generations.

Our second measure of education, the high school dropout rate in 1980 for young people aged 16-21, reveals potential problems in some areas. Yet in many nonmetro counties where the average education of adults is low, the high school dropout rate of young people is also low. A striking example of such an area of paradox is Arkansas side of the the Mississippi Delta. By comparing figures 1 and 2, one can see that although average education of adults was low in the Arkansas counties bordering the Mississippi River, the high school dropout rate of their young people was not correspondingly high. Despite the low education levels among adults in the Coastal Plain of Alabama and Georgia, the young people in Alabama and to some extent in Georgia were either enrolled in or had graduated from high school. The situation was similar in the tobacco-and peanut-farming areas of Virginia and North Carolina. A word of caution, however: because many rural blacks attend high school at somewhat older than usual ages, the dropout rate in rural black counties may be somewhat depressed.

Southwestern Texas and Appalachia showed little advancement in the education of their people; most counties had a high dropout rate. Young people in the Indian counties clustered in the corners of northeastern Arizona, southeastern Utah, and northwestern New Mexico followed in their parents' low-education status.

Scattered throughout the West, in central Oregon, Montana, and South Dakota are Indian counties with a high dropout rate that did not appear in the education group. The Indian adults also had low education levels, but because the Indians had a relatively young population, better- educated older whites predominated in the counties' adult education measure, whereas the younger Indians predominated in the measure of high school dropouts.

The dropout rate was also high in non-Hispanic parts of Texas, indicating new problems in predominantly white Texas counties without low adult education. New problems may also be foreseen in northeastern Alabama and northern Georgia, where the dropout rate was high even though adult education was not low. Most of these Alabama and Georgia counties have a blue-collar, white population and a manufacturing economy. The potential of these counties to have education problems should be further examined.

In sum, counties with high proportions of Hispanic and Indian minorities, as well as the white counties in Appalachia, continued with low education levels as evidenced by their high dropout rate. Some Southern counties with black, farm-oriented populations may be reducing their traditionally low education in future years by encouraging young people to remain in high school.

The primary regional concentrations of nonmetro residents with a college education were in northern New England, particularly Vermont and New Hampshire, and in the Rocky Mountains portion of the West (fig. 3). While some of the concentration stemmed from the influx of highly educated metro residents in the 1970's, much of it is native. The Mormons of Utah and the southern part of Idaho have a strong tradition of education. Western Colorado has a longstanding history of higher education for its people. Hawaii appears because of its highly educated Asian and white populations. Alaska's nonmetro concentration of college-educated people is due in part to the tendency of older whites to move away, leaving the relatively well-educated younger people who are willing to cope with the harsh climate in order to take advantage of the economic opportunity available in Alaska. Most of the isolated high-education counties scattered throughout the country are home to State or private colleges.

Loss of College-Educated Adults Highest for Nonmetro Northeast and West

Both the nonmetro Northeast and West experienced heavy losses of people with 4 or more years of college to the metro areas in their own regions (table 4). In the West, the net loss began with high school graduates and was greater with each higher step of education, while the Northeast's relationship of population loss with educational attainment was not as direct. People with some college education were lost from the Northeast at a slower rate than either those without a high school diploma or high school graduates.

Gains and losses in the Midwest were under 1 percent for most education groups, with loss of college-educated people to metro areas higher at -1.6 percent. The South's greatest loss to metro areas was of residents with some college education. Both the Midwest and South had moderately high gross rates of migration in all education groups, movement not readily apparent from their low net migration rates.

South Shows Sharpest Decline in Labor Force Participation with Age

More than half of all women and more than three-fourths of all men were in the labor force in 1980. Although the labor force participation rate is higher among men than women, the rate for men has been slipping downward while that for women has been inching upward. Labor force participation also varies by race and age. Black women have a higher labor force participation rate than white women, while the rates for white men are higher than those for black men.

Average labor force participation peaks among those 35-44 years old (table 5). Slightly more than three-fourths of both metro and nonmetro persons of this age participated in the labor force, with metro areas having a slightly higher proportion.

Nationally and regionally, labor force participation drops with age. In the 55-64 age group, nearly a fifth fewer people were in the labor force than among those 45-54 years old, while the rate for people of retirement age, 65 and over, drops to about 13 percent. In every age group the labor force participation rate for nonmetro areas is somewhat lower than for metro areas, due in part to higher proportions of discouraged workers and people with work-preventing disabilities.

The nonmetro South showed the sharpest regional decline in labor force participation with advancing age, beginning with the 35-44 year olds. Part of the reason for this greater rate of decline may be the higher work disability found in the South. That may reflect the higher percentage of people working in high-risk jobs, such as mining, or poor health and health care in the region. Southern young people, aged 16-24, who lived in nonmetro areas had the lowest labor force participation rate compared with the other regions. The nonmetro Midwest had a fairly high participation rate for retirement-age people, possibly because farmers tend to work well into their later years.

Families with Two Full-Time Earners Most Common in South

The average proportion of families with two workers, one of whom worked full-time, was about the same for metro and nonmetro areas in the United States in 1980 (fig. 4). Although little difference existed by residence in the proportion of two-worker families (with one worker being full-time), there was a difference in the distribution when both workers were full-time. Metro areas were more likely than nonmetro areas to have two-worker families, with both full-time.

Counties in the nonmetro Midwest had a larger proportion of two-worker families with one full-time worker. Two-worker families in the nonmetro South had more families where both workers had full-time jobs, perhaps because southern wages are low. In the higher-wage nonmetro West, two-worker families were least likely to have both workers full-time.

Involuntary Part-time Workers More Prevalent in Nonmetro Areas

Nonmetro workers are more likely to be part-timers than metro workers. Part-time work (less than 35 hours per week) can be either voluntary or involuntary. Voluntary part-time workers do not want or are unavailable for full-time work. Women are more likely than men, and older persons more likely than younger persons, to prefer part-time work. Persons who are working part-time involuntarily usually do so because no full-time work is available. Involuntary part-time workers are part of the underemployed.

About two-thirds of all part-time workers were voluntary, according to data from the Census on part-time workers in 1985. Nonmetro part-time workers were more likely to be involuntary part-timers, with 30 percent of metro and 39 percent of nonmetro part-time workers wanting full-time work. Of nonmetro regions, the South had the highest proportion of involuntary part-time workers, with the West close behind.

Both metro and nonmetro men were less likely than women to be employed part-time in 1980 (fig. 5). Although metro men were almost as likely as nonmetro men to be part-time employees, metro women were less likely than nonmetro women to be part-time.

No significant differences existed between the Midwest and West in the average proportion of women employed part-time. Nonmetro men and women in the South were least likely to be employed part-time, while nonmetro men in the Midwest were most likely to be part-time workers. The difference between part-time nonmetro men and women ranged from a low of 7.6 percentage points in the South to a high of 15 points in the West.

Nonmetro Residents More Likely to be Discouraged Workers

Discouraged workers make up another facet of underemployment. People who want a regular job, but have given up looking for one because they believe that no work is available or that no one would hire them due to personal characteristics such as lack of schooling or age (ill health and disability not included) are not counted in unemployment statistics because they are not actively seeking employment.

Nearly 10 percent of the nonmetro population 16 years or older were classified as discouraged workers in 1986, while only 5.2 percent of the metro population were in this category. The higher prevalence of both involuntary part-time workers and discouraged workers in the nonmetro United States points up the need for greater economic opportunity in nonmetro areas for these potential full-time workers.

Work Disability More Common in Nonmetro Areas

Slightly more than 4 percent of the U.S. population 16-64 years old were not in the labor force in 1980 because of a work disability. 3/ A work disability can be mental or physical, and it varies by social and economic characteristics. Men tend to have a higher level of work disability than women, and the rate is likely to be higher for older persons than for younger ones. Blacks are far more likely than whites to be work disabled (8.3 vs. 4.1 percent). The reasons behind work-preventing disability include having worked in high-risk jobs and having poor health and few nearby health care facilities.

Work disability varies by residence, with nonmetro counties having a higher average proportion of disabled persons than metro counties (fig. 6). This metro-nonmetro disparity is seen in all regions, with the difference significant in all but the West.

Among nonmetro areas, the Midwest and West had the lowest levels of work disability, while the South had by far the highest, averaging 7.5 percent work-disabled residents in its nonmetro counties. Part of the greater rate of Southern disability was due to the higher proportion of blacks, although southern rates were high for both races. Disability for southern nonmetro blacks was at 8.6 percent and for their white counterparts at 6.8 percent.

3/ Work disability is defined as a health condition which lasted 6 or more months and which prevented a person from working at a job for which they were qualified.

Both of these rates were higher than those nationally for blacks and whites. Poor health care and high risk mining form at least part of the explanation for higher southern work disability.

Mothers in the West Least Likely to Work

Women were once considered an unreliable part of the work force because they were likely to interupt or give up outside work when they had children. Regardless of age and presence of children, the proportion of mothers who work has increased significantly in the past 25 years. Today, neither marital status nor residence solely determines whether or not a mother works. Mothers in female-headed families are more likely to work than mothers in married-couple families. All women with only older children (age 6-17) are more likely to work than women who have children under age 6.

Nonmetro women 18-34 years old (child-bearing ages) were less likely to be in the labor force than metro women in the 1970's. By 1980, nonmetro mothers with children under age 6 were just as likely as their metro counterparts to be in the labor force (fig. 7). Although the metro proportion is somewhat higher, more than half of both metro and nonmetro mothers with children age 6-17 only were in the labor force (63.5 percent vs. 61.7 percent).

Among nonmetro regions, there were some differences in labor force participation of mothers with children. The South had the largest proportion of working mothers with children under age 6, due in part to the high proportion of southern female-headed households. Western nonmetro women who had children under 6 were less likely than those in other regions to be in the labor force. It is possible that higher western nonmetro wages allow these women, most of whom are in married-couple families, to stay home with their preschool children.

Conclusions

With regard to the human resources of the labor force examined here, the nonmetro areas of the United States are at a disadavantage. Nonmetro America has seen a net loss of people, particularly of young adults, to metro areas for each year since 1982-83. Nonmetro areas had a significantly lower proportion of adults in 1980 between the ages of 20 and 44 and a higher proportion of people over age 55 than did metro areas. Net migration rates by age in 1985-86 show that this older age distribution is becoming older as the 1980's progress. In part because of higher work disability and higher proportions of discouraged workers, nonmetro labor force participation rates were lower than metro rates for each age group.

The nonmetro areas of the four U.S. regions differed in their level of human resources. Western nonmetro counties appeared to be in the best overall position, while the South fell short on many measures.

Of all the regions, the nonmetro West had the highest percentage of people age 25-34, and the lowest percentage of people age 65 and older in 1980, although the West's relatively high net rate of outmigration of young adults age 16-34 in 1985-86 may have reduced its advantage somewhat. The nonmetro Midwest has the least advantageous age distribution: a low proportion of young adults of labor force age and a high proportion of elderly.

Western nonmetro counties had the lowest percentage of mothers in the labor force, and the lowest percentage of two-worker families where both earners worked full-time. Less than half of the western and midwestern nonmetro counties had above-average work disability.

The Rocky Mountain West had the highest concentration of college-educated people in 1980. This western advantage may have been diluted somewhat, as indicated by relatively high net outmigration of college-educated people from the nonmetro West during 1985-86. Similarly, northeastern nonmetro areas, some of which had a fairly high 1980 level of college education, also had a relatively high net loss of college-educated people during 1985-86.

The nonmetro South had the lowest rate of labor force participation for all but the 25-34 age group, and the steepest decline of participation with advancing age. Part of the explanation for the lower participation rate may be that the nonmetro South also had the highest percentage of counties with above average work disability. Southern nonmetro counties had the highest percentage of two-worker families where both workers were full-time, possibly an indication that wages were so low as to require full-time positions of both wage earners. Perhaps for the same reason, as well as the greater southern proportion of female headed households, the South also had a slightly greater proportion of mothers in the labor force.

By all education measures, the South had the greatest disadvantage as of 1980. Attention should be paid to upgrading the education of the people in the Coastal Plain of Alabama and Georgia, the Mississippi Delta, and in Appalachia. At the same time, more higher level jobs in these areas would make the reward for increased education more tangible.

In all nonmetro areas that have low levels of human resources, effort should be made to ensure that labor force opportunities exist to attract or hold people who will raise the area's quality of human resources. New businesses coming into many nonmetro counties may have to bring in upper level workers. However, with time, the incentive of higher wages should induce greater numbers of young adults to stay in school or go back to school for more training. Education needs to be a high priority in nonmetro areas. While not a substitute for work experience or specific job-related training, education provides the flexibility and basic tools with which to learn new skills and adapt to changing situations.

References

1. Beale, Calvin L. "Rural Depopulation in the United States: Some Demographic Consequences of Agricultural Adjustments," Demography, vol. 1, no. 1, 1964, pp. 264-72.

2. _______________. "Rural America Today: Progress and Problems in Achieving Development Objectives." Presented at Agricultural Outlook Conference, Washington, DC, Nov. 29-Dec. 1, 1982.

3. _______________. "Discussion," New Generation, summer 1968, pp. 17-18.

4. Daberkow, Stan G., and others. Distribution of Employment Growth in Nine Kentucky Counties, RDRR-41. U.S. Dept. Agr., Econ. Res. Serv., 1984.

5. Engels, Richard A. "The Metropolitan/Nonmetropolitan Population at Mid-Decade." Presented at Population Association of America annual meetings, San Francisco, Apr. 2-6, 1986.

6. Hays, William A. Statistics for the Social Sciences, Chapter 10. New York: Holt, Rinehart and Winston, Inc., 1973.

7. McGranahan, David A. "Changes in Age Structure and Rural Community Growth," Rural Development Perspectives, vol. 1, issue 3, U.S. Dept. Agr., Econ. Res. Serv., June 1985, pp. 21-25.

8. Mueller, Eva, and Jane Lean. "The Case Against Migration," New Generation, summer 1968, pp. 7-8.

9. Seyfrit, Carole L. "Migration Intentions of Rural Youth: Testing An Assumed Benefit of Rapid Growth," Rural Sociology, vol. 51, no. 2, 1986, pp. 199-211.

10. Swanson, Linda L. "Nonmetropolitan-destined Migration and Metropolitan Area Attributes." Pub. Order No. DA8304611, University Microfilms International. Ph.D. dissertation, Univ. of Michigan, Ann Arbor, 1982.

11. Townroe, P.M. Industrial Movement, Experience in the U.S. and the U.K., Westmead, England: Saxon House, 1979.

12. Williams, James D., and Andrew J. Sofranko. "Motivations for the Inmigration Component of Population Turnaround in Nonmetropolitan Areas," Demography, vol. 16, no. 2, 1979, pp. 239-55.

Table 1—Percentage distribution of the population of labor force age, by region and residence, 1980

Item	Total 16 and over	16-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65 years and over
	Thousands	Percent of total						
U.S. total	169,579	9.9	12.2	21.6	15.0	13.4	12.8	15.0
Metro	129,358	9.8	12.4	22.3	15.2	13.5	12.7	14.2
Nonmetro	40,222	10.3	11.5	19.8	14.3	13.0	13.3	17.6
Northeast	37,751	9.6	11.4	20.4	14.7	14.0	13.9	16.1
Metro	33,600	9.5	11.4	20.4	14.8	14.1	14.0	15.9
Nonmetro	4,151	10.2	11.3	19.9	14.2	13.2	13.7	17.4
Midwest	44,022	10.2	12.5	21.3	14.7	13.3	12.7	15.2
Metro	31,045	10.2	13.0	22.3	15.0	13.5	12.5	13.6
Nonmetro	12,977	10.3	11.5	19.1	13.9	12.9	13.4	18.9
South	55,704	10.1	12.2	21.6	15.1	13.3	12.6	15.2
Metro	38,025	9.9	12.6	22.5	15.4	13.3	12.2	14.1
Nonmetro	17,679	10.4	11.4	19.5	14.5	13.2	13.4	17.7
West	32,101	9.7	12.7	23.7	15.5	12.9	12.2	13.3
Metro	26,689	9.6	12.8	23.9	15.6	13.0	12.0	13.1
Nonmetro	5,413	10.3	12.1	22.7	15.0	12.6	12.7	14.7

Source: Census of Population, 1980.

Table 2—Nonmetro areas show greatest loss to metro areas due to net outmigration among young adults in 1985-86

Nonmetro region	16-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65+ years
				Percent 1/			
Northeast	-4.00	-9.86	-8.28	-4.40	-3.61	-1.77	-1.19
Midwest	-1.44	-6.34	.28	-1.57	-.80	-.12	.54
South	-2.96	-3.64	-1.77	-.36	.81	1.80	.19
West	-3.17	-6.16	-4.21	-2.13	-1.53	.40	-.34
United States:							
Exchange within region	-2.88	-4.89	-2.20	-.79	.06	.30	.01
Exchange outside region	.26	-.65	-.03	-.31	-.55	.32	.07
Total net exchange	-2.62	-5.54	-2.23	-1.10	-.49	.62	.08

1/ Net migration rates for nonmetro areas.

Source: Current Population Survey, March 1986.

Table 3—Mean county values of selected education measures by metro and nonmetro residence, 1980

Residence	Adult education	High school dropout rate	College educated
	Years	Percent	
Metro	11.6	15.0	12.8
Nonmetro	10.9	16.9	9.2
United States	11.0	16.5	10.1

Source: Census of Population, 1980.

Table 4—Nonmetro college-educated residents tended to move to metro areas in 1985-86

Nonmetro region	Education level Less than high school	 High school	 Some college	 College and beyond
		Percent 1/		
Northeast	-3.45	-4.62	-.93	-6.86
Midwest	.17	-.12	-.21	-1.60
South	.42	-.19	-1.65	-.63
West	2.21	-2.66	-2.59	-4.54
United States:				
Exchange within region	.18	-.84	-1.35	-2.27
Exchange outside region	-.01	-.19	0	-.33
Total net exchange	.17	-1.03	-1.35	-2.60

Net migration rate for nonmetro areas.

1/ Rates calculated only for adults age 25 and over.

Source: Current Population Survey, March 1986.

Table 5—Percentage of labor force participation, by age, region, and residence, 1980

Item	16 years and over		Participation rate						
	Total Participating	Participation rate	16-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65 years and over
	Thousands	Percent	Percent						
U.S. total	104,450	61.6	48.4	74.5	78.4	78.9	73.9	55.5	12.6
Metro	81,387	62.9	49.5	75.3	79.0	79.4	74.8	56.9	12.8
Nonmetro	23,063	57.3	44.9	71.7	76.5	77.3	70.9	51.0	12.2
Northeast	22,919	60.7	45.3	73.6	77.1	78.1	75.5	58.9	12.7
Metro	20,504	61.0	45.6	73.8	77.1	78.1	75.6	59.6	13.0
Nonmetro	2,415	58.2	43.3	72.0	77.4	78.7	73.9	53.4	11.1
Midwest	27,549	62.6	52.3	76.3	78.7	79.5	74.8	57.7	12.7
Metro	19,923	64.2	53.3	76.8	79.1	79.8	75.3	58.8	12.6
Nonmetro	7,626	58.8	49.9	74.8	77.3	78.7	73.6	55.4	12.8
South	33,586	60.3	45.4	73.4	78.8	78.5	71.7	51.6	12.6
Metro	23,766	62.5	47.8	74.8	79.9	79.6	73.3	53.6	12.9
Nonmetro	9,820	55.5	40.5	70.8	76.1	75.9	68.3	47.7	12.2
West	20,396	63.5	51.7	75.0	78.8	79.9	74.4	54.7	12.6
Metro	17,194	64.4	52.3	76.0	79.5	80.4	75.1	55.8	12.7
Nonmetro	3,202	59.1	49.0	69.8	75.3	77.4	70.7	49.5	12.1

Source: Census of Population, 1980

Figure 1--Average nonmetro education is lowest in South (adults at least 25 years old), 1980

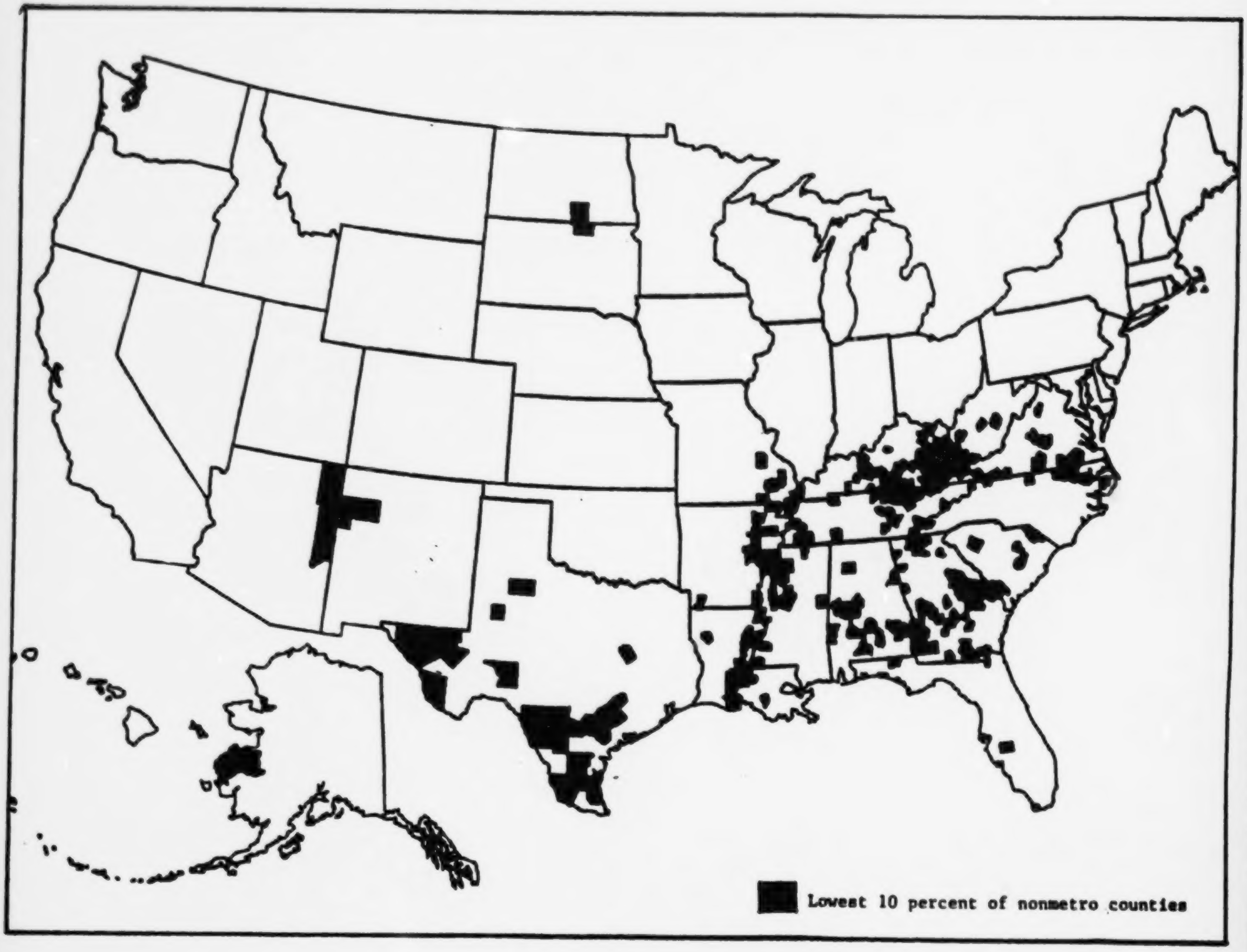

■ Lowest 10 percent of nonmetro counties

Figure 2--Highest nonmetro high school dropout rate is in South and Southwest (ages 16-21), 1980

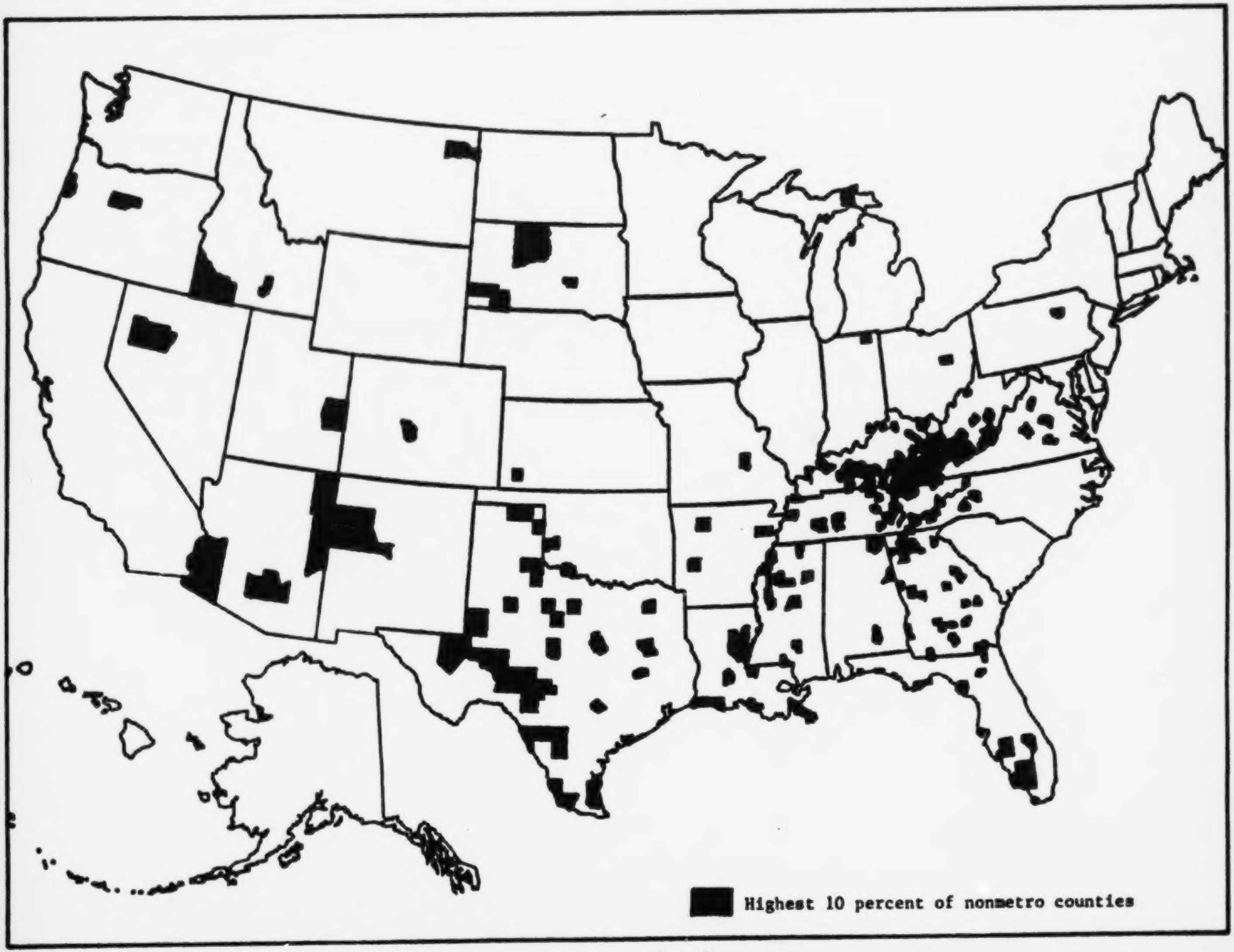
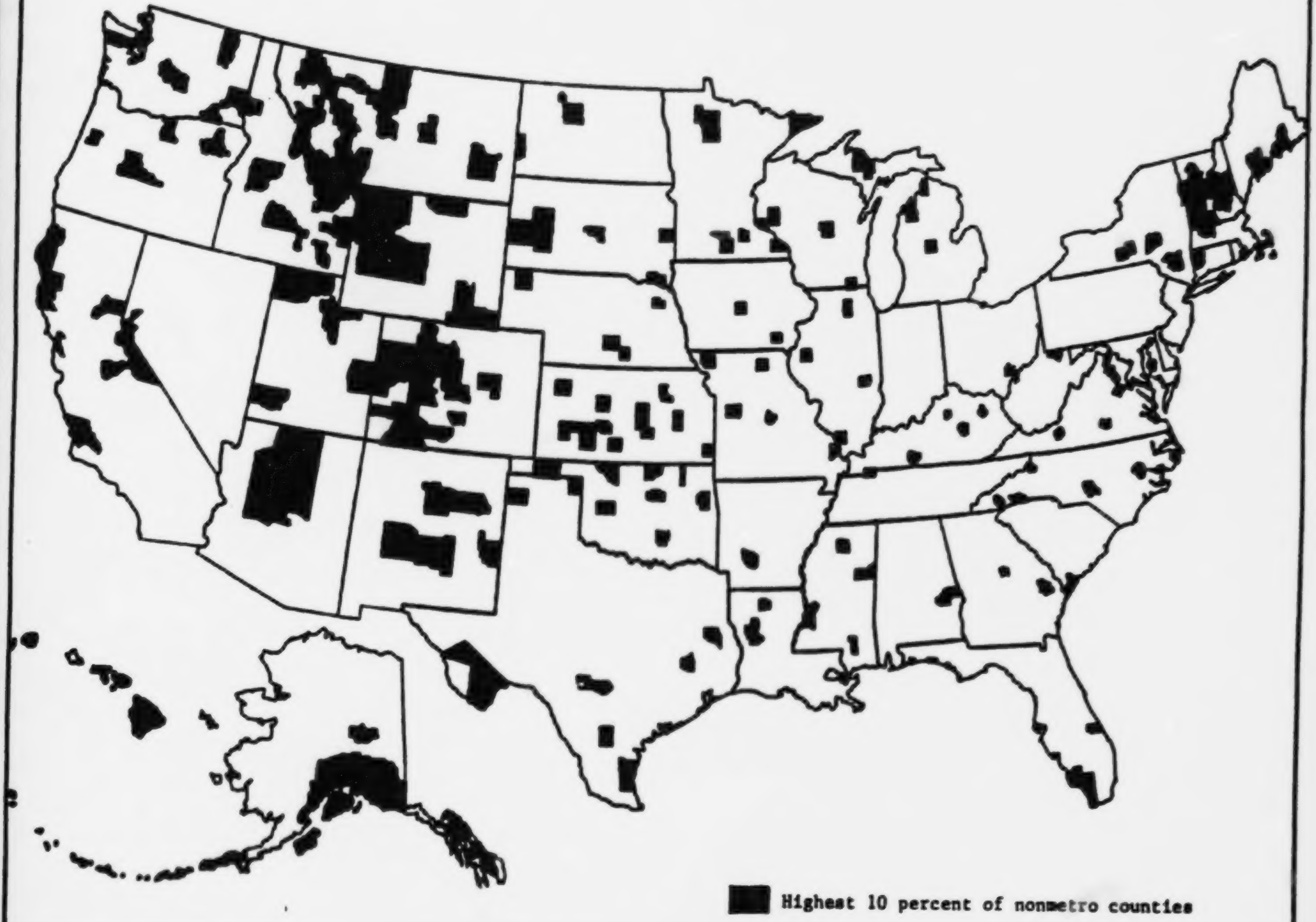

■ Highest 10 percent of nonmetro counties

Figure 3--Nonmetro residents with college education is highest in New England and Rocky Mountain West, 1980


■ Highest 10 percent of nonmetro counties

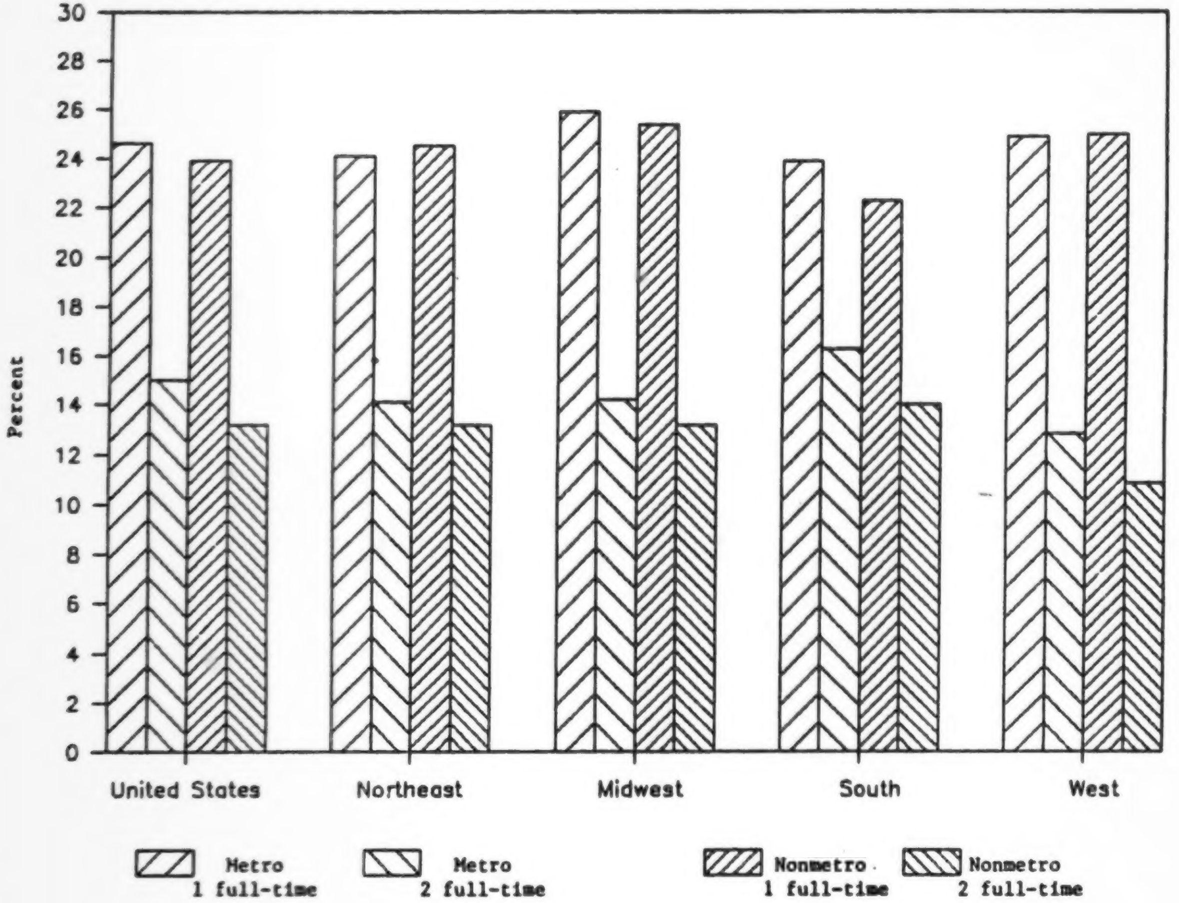


Figure 4--Families with one or more full-time workers, 1980

Figure 5--Part-time workers, by sex, 1980

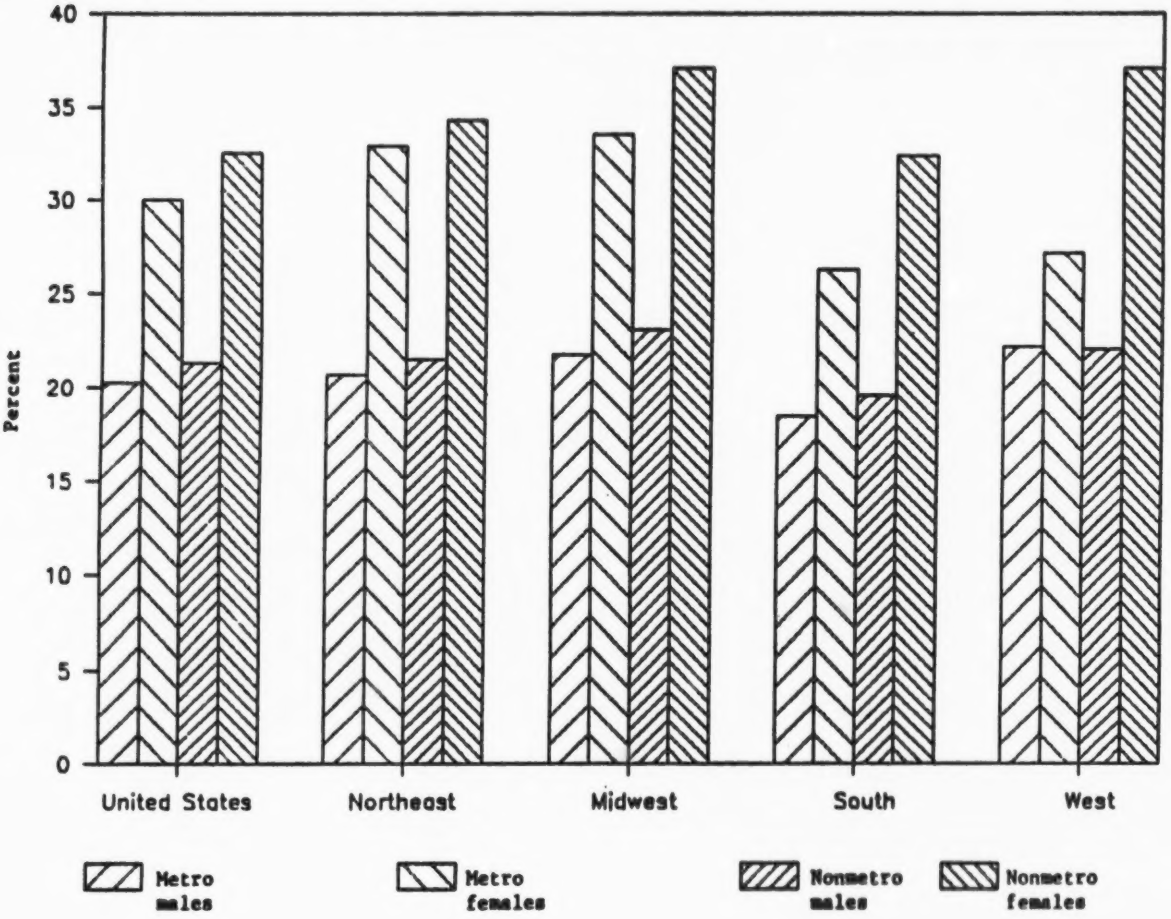


Figure 6--Prevalence of work-preventing disabilities, by region, 1980

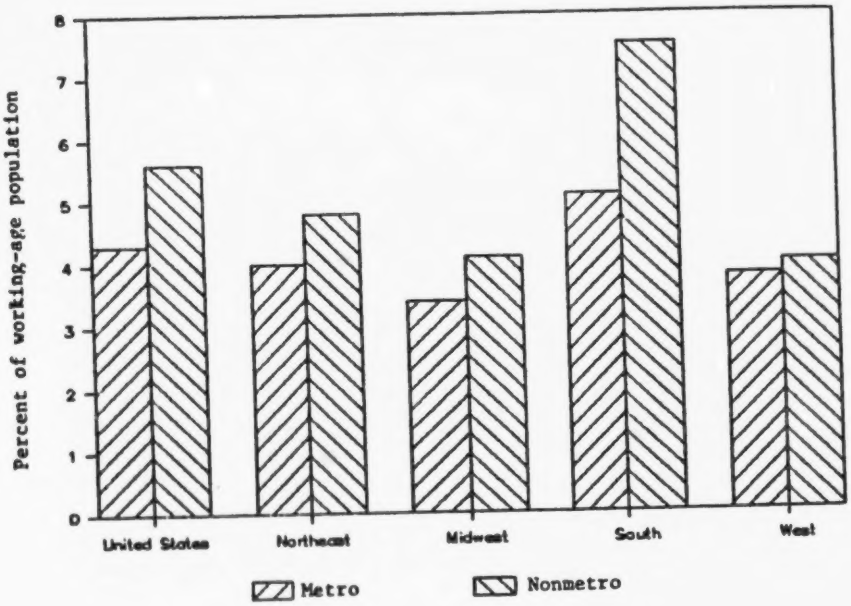
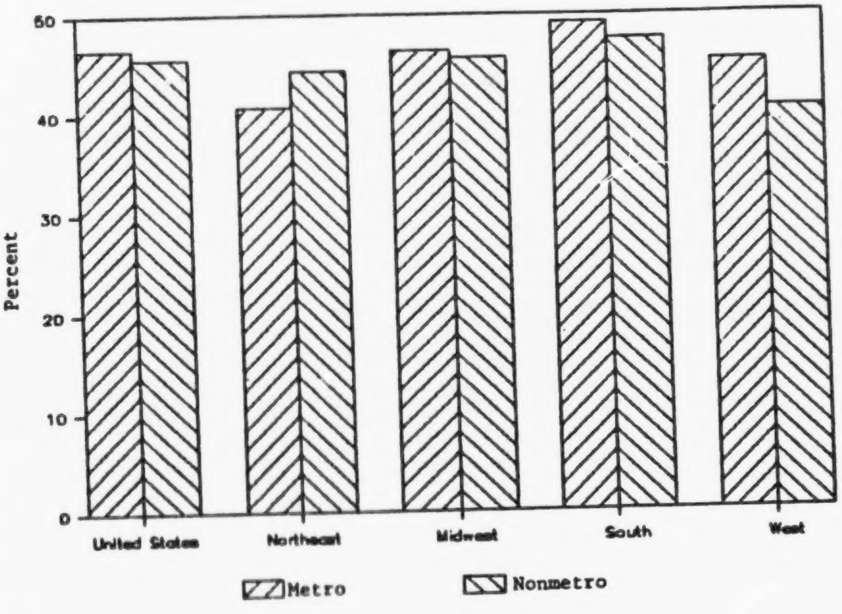


Figure 7--Mothers in the labor force with children under age 6, 1980



CHAPTER 8

THE ECONOMIC PERFORMANCE OF RURAL LABOR MARKETS

Molly Sizer Killian and Thomas F. Hady

Abstract. The economies of industrially diversified rural labor market areas performed better in 1969-84 than those with specialized economies. Of the industrially specialized areas, only the public education/administration specialty areas did as well as the diversified economies. While neither of these types of areas scored at the top on all six selected measures of economic performance, they often were near the top, and never near the bottom. Areas specializing in durable manufacturing did the worst, on average. The other groups (agriculture, mining, wood products, and textiles-apparel) varied in different aspects of performance but it was hard to find much difference among them overall. Areas with higher proportions of high school graduates in the population, had higher employment growth, but not income growth.

During the last two decades, some parts of nonmetro America have done very well economically, experiencing rapid employment and population growth. They have managed to weather recent economic crisis in reasonably good shape. However, many other nonmetro areas have not fared nearly so well. Stagnating local economies, outmigrations of the young and well educated, and excessively high unemployment typify many parts of nonmetro America.

Rural development professionals and community leaders are searching for remedies to declining or disappearing local economies. Some of the development options under consideration include support for declining rural industries, diversification of one-company towns, recruitment of high-tech, high-growth industries, and improvement of the quality of human capital in rural areas through education. This paper concentrates on the probable effectiveness of one of these solutions, economic diversification. More specifically, on the premise that the recent past is a good guide to what the future holds, trends in employment and income among nonmetro and rural economies that are specialized in various industries, as well as those that are diversified, are compared. In addition, the relationship between the educational composition of rural or nonmetro local economies and their growth in employment and income is examined.

Molly Killian is a sociologist and Thomas Hady is an economist in the Agriculture and Rural Economy Division, ERS.

Industrial Specialization and Diversification in Rural Areas

Employment and earnings in rural industries vary a great deal over time. Some of this variation is related to cyclical ups and downs, some to longer-term trends in the national economy, and some in direct response to specific events in the global political and economic systems. The booming agricultural economy of the 1970's, spurred by growth in U.S. farm exports, was followed by a sharp drop in farmland values in the mid-1980's. The mining industries, especially coal and oil production, profited greatly from the foreign oil embargo and steeply rising energy prices in the late 1970's. Many manufacturing industries have undergone a dramatic restructuring in response to increasing competition from abroad, and are hoping for better times as a result of recent changes in the exchange value of the dollar.

Since industries are affected differently by the national economy and since employment in many rural areas is concentrated in only a few industries, areas with different industrial specializations are expected to be affected differently by economic fluctuations. For these areas, the economic performance of the local area as a whole is inextricably linked with the performance of the specialty industry. For example, areas that rely heavily on the petroleum or coal-mining industry to create jobs and generate income locally boomed when oil prices went up in the 1970's and went bust when oil prices dropped in the 1980's. Similarly, the entire local economy in an area specialized in farming, including the local feed supply stores, equipment retailers, grocery stores, and restaurants, will be affected by national and international conditions in agriculture.

Many researchers and policymakers suggest, therefore, that rural development strategies should attempt to diversify rural economies, since areas with a broad mix of industries are thought to be less affected by downswings and crisis in the larger economy (6, 8, 11). 1/ Thus, a local area with a variety of alternative employment opportunities is less likely to be hurt by foreign competition in textiles than an area that depends on the textile industry as its major source of employment.

Diversification, however, is not synonymous with development. Ideally, economic development involves both rapid and stable growth, both in income and employment. However, rapidity and stability of growth are not always compatible. Just as investment opportunities frequently offer the potential of a higher return in exchange for an increased risk, so too are local development officials sometimes faced with a tradeoff between rapid and stable economic growth. Areas specializing in high-growth industries, although more vulnerable to outside economic and political forces, may grow considerably faster

---

1/ Underscored numbers in parentheses refer to sources cited in the References section at the end of the chapter.

than areas with a mixture of high- and slow-growth industries. Thus, the overall economic performance of an area should depend on both the amount of diversity in the local industrial structure and the characteristics of the dominant industries in the area (9).

The Educational Composition of Rural Areas

Local development strategies also frequently include an emphasis on education as a means for improving economic performance. Higher levels of education are typically associated with increased productivity, higher incomes, and lower unemployment. Areas with higher concentrations of well-educated workers are thought to attract growing, high-wage industries. Furthermore, education is an important variable because a community can affect it, at least in the long run, through spending on schools and vocational facilities.

The relationship between the educational composition of a local area and its economic performance, however, is often conditioned by the local industrial structure. Much of the economic growth in the rural South, for example, has been attributed to industries relocating from the Frost Belt to the Sun Belt in search of cheaper labor. In addition, the earnings of blue-collar workers with relatively little education are quite high in many industries, especially in durable manufacturing. Thus, the economic performance of rural areas can be expected to vary by both the mix of local industries and the education of the local population.

What Do We Mean By...?

To measure the economic performance of rural areas, we need to define our terms. We use the rural labor market as a convenient way of defining a local economy, but what is a local economy? In particular, why use groups of counties rather than the larger or smaller units other analysts have used? How can we identify which local economies are specialized and which are diversified? And what is a "good" economic performance? Decisions about all of these definitions can affect the results of an analysis, so it is important that we explain them in some detail.

What is a Local Economy?

Identifying a local economy is difficult. Ideally, we could draw boundaries around an area and say that the economic activities within the boundary are part of the local economy and those beyond the boundary are part of a larger (regional, national, or international) economy. However, economic realities are rarely so clear cut. Defining a local economy requires balancing a variety of overlapping markets of individual companies and people. A company producing chickens in Rockingham County, Va., for example, may market its product throughout the entire eastern United States. In addition, part of the local labor force in Rockingham county may work as far away as Washington, DC. Therein lies the problem of defining the area constituting the local economy. The analyst must find some compromise that represents the industries in which most of the local workers find employment, without introducing too much "noise" into the analysis in the form of industries whose workers are mostly from outside the area. Fortunately, this process is somewhat easier for labor markets than for product markets, since most of the Rockingham labor force will come from Rockingham and the surrounding counties. Researchers have generally used county boundaries to approximate local economies (1, 7); however, local economies often are functionally larger than a single county. Therefore, an alternative definition of a local economy, the local labor market area, is used in this analysis.

Conceptually, labor market areas (LMA's) encompass both the place of residence and the place of work of a local population. Operationally, an LMA is a group of counties in which most of the population live and work. For the United States, 382 county groups have been identified using 1980 data on intercounty commuting patterns (fig. 1; see figures at end of chapter). Counties that exchanged relatively large numbers of commuters were placed in the same LMA. 2/ Roughly half (182) of these LMA's were rural (that is, most of their 1980 population was rural), or nonmetro (that is, all the counties in the LMA were classified as nonmetro in 1980). 3/ In the remainder of this paper, "rural" refers to LMA's that met either of these two criteria; those that met neither of these criteria are called "urban."

What is Industrial Diversity and Specialization?

Diversity and specialization refer to how evenly an area's workers are distributed across industrial categories and to which industry is the

---

2/ The data used to construct these LMA's are the 1980 Census journey-to-work data for counties and county equivalents in the 50 States and District of Columbia. Matrices of these data were constructed to indicate the relative number of commuters shared by any two counties. Each off-diagonal cell in a matrix represented the strength of the commuting ties between a pair of counties. These matrices were then analyzed using a statistical procedure called hierarchical cluster analysis. The results of the cluster analysis were used to identify groups of counties with strong shared commuting ties. See (14) for a more detailed description of this LMA delineation process.

3/ The information used to describe these LMA's--their industrial structures and their economic performances over the last 16 years--is drawn from three county-level data sources: the Bureau of Economic Analysis county files on industrial employment 1969-84; the Bureau of Labor Statistics county files on unemployment 1976-85; and the Bureau of the Census summary tape files from the 1980 Census of the Population. These data were first aggregated to the level of the LMA's and then used to describe the industrial structures and other characteristics of the rural LMA's.

major source of employment in the area. An area with relatively few of its workers in a single industry (or small group of industries) has a diversified industrial structure; an area with employment concentrated in relatively few industries has a specialized industrial structure.

Most measures of diversity fall into one of two categories: those "that define absolute diversification as a balanced industrial structure" (10); and those that equate a perfectly diversified industrial structure to an ideal stock portfolio, in that it balances high-growth industries with low-risk ones (2, 3, 4).

The major point of contention between the two is the treatment of industrial categories. The first method treats all categories as equal, thus assuming that employment in a perfectly diversified economy will be equally distributed across all industrial categories. The portfolio method argues that, since industries vary in terms of their sensitivity to the business cycle, the importance given to each industrial category should depend on both its own variability plus the extent to which it varies with or against other industries. When used to analyze stability, this latter method seems inappropriate, since it builds the stability of industries into the measure of diversity. Furthermore, neither method provides any information about which industry is dominant in a nondiversified, or specialized, economy (5).

For our analysis, we adopted a variation of the equal-shares method. We first identified as specialized those LMA's that had a large proportion (10 percent or more) of their total employment in a single industrial category, and the remainder (LMA's with less than 10 percent of the total employment in a single category) as diversified. 4/ Using the 1980 Census of Population data on industrial employment (in 49 industrial categories), this approach yielded 96 specialized rural LMA's and 86 diversified rural LMA's. Next, the specialized LMA's were grouped into one of the following specialty types, based on the largest industrial category: 5/

4/ This 10-percent cutoff represents approximately 5 times the percentage of workers that would be employed in an industry if employment in the LMA was perfectly distributed across all 49 categories.

5/ Five of the rural LMA's had over 10 percent of their total employment in construction. A concentration of employment in construction is a fairly temporary state of affairs, and since no other industrial category employment more than 10 percent of the workers in these 5 LMA's, they were included in the diversified category.

Agriculture	32
Mining	12
Textiles-apparel	12
Wood products	8
Durable manufacturing	6
Public education/administration	26
Total specialized LMA's	96
Total diversified LMA's	86

The average percent employed in the largest industrial category in these seven LMA types ranged from 18 percent in the textile-apparel LMA's to 12 percent in the durable manufacturing LMA's to slightly more than 8 percent in the diversified LMA's.

Ideally, the six specialty types would be homogeneous with respect to the dominant industry. However, due to data limitations, and in some cases to small numbers of LMA's with a given specialization, there is some degree of internal variation within each of these categories. For example, the 1980 Census of Population data on industrial employment does not distinguish between different types of agriculture or mining. Thus, the 32 agriculturally specialized LMA's include employment in a variety of grain, livestock, and dairy farms. These LMA's are also a mixture of areas dominated by large farms and areas specializing in smaller owner-operated farms. Similarly, the dominant industries in the 12 LMA's specializing in mining include coal, oil, and mineral production.

The remaining four specialty types represent combinations of the industrial categories from the Census data. The textile-apparel specialty and the public education/administration specialty are self-explanatory, but the wood products specialty type includes LMA's specializing in paper and allied products and those specializing in furniture, lumber, and miscellaneous wood products. And the durable manufacturing specialty type includes LMA's specializing in one of the following industrial categories: machinery (except electrical), electrical machinery, or motor vehicles and motor vehicle equipment.

With the exception of the LMA's specializing in public education/ administration and the diversified LMA's, each type of rural LMA tends to be concentrated in a certain region. Most of the rural LMA's specializing in agriculture are located in the North Central region, especially in the Great Plains. Another, smaller concentration of agricultural LMA's is along the Mississippi River Delta in southeastern Missouri, Arkansas, and Mississippi.

The rural LMA's specializing in mining are located primarily in the coal-producing areas of Appalachia and the mineral-producing areas of the West and Southwest, although one is located in the oil-producing panhandles of Oklahoma and Texas. The Pacific Northwest contains half of the rural LMA's specializing in wood products, and most of the remaining are located in the southern Appalachian/Blue Ridge areas of Virginia, North Carolina, and Tennessee. The other two types of LMA's that specialize in manufacturing are all east of the Mississippi River: those specializing in textiles-apparel are concentrated in the South and those specializing in durable manufacturing are concentrated in the older industrial States of Michigan, Indiana, and Ohio.

What is Good Economic Performance?

We used two types of indicators of economic performance: the material well-being of the local population, and the availability of employment opportunities. Per capita incomes are used to measure the first, and unemployment rates and employment growth to measure the second.

A good economic performance is a relative concept, implying that an economy is doing well relative to others according to one or more of these economic indicators. This relativity actually has three dimensions: the level of performance of an economic indicator, the rate of change in it, and the stability of that change. Analyzing the two economic indicators along the three dimensions results in six elements of good economic performance. First, an economy that is performing well has a relatively high per capita income. Second, that economy has a relatively low unemployment rate. Third and fourth, per capita income and employment is growing at a relatively favorable rate. Fifth and sixth, the rate of growth in income and employment remains relatively stable. In this study, we concentrate on the first four factors and provide some insights on the stability of growth. Stability issues, however, turn out to be very complicated.

Local Economic Performance, 1984-85

The 1984 per capita income levels and the 1985 average unemployment rates for each of the seven types of rural LMA's are compared in table 1 to the income and unemployment rates in all urban and rural LMA's (see tables at end of chapter). Average per capita incomes in urban LMA's in 1984 were almost $2,000 higher than the average of the rural LMA's. But, this aggregate rural income disguises a great deal of variation. Rural LMA's specializing in agriculture and wood products as well as those that specialized in the higher wage durable manufacturing industries had relatively high per capita income in 1984. 6/ And, as might be expected, the lowest per capita incomes were in the rural LMA's specializing in the low-wage industries of mining and textiles and apparel. Rural LMA's with a diversified

---

6/ Since the most recent income data available are from 1984, we probably have not captured the full effects of the current income and asset problems in the farm sector.

industrial structure and those specializing in public education/administration had per capita incomes slightly lower than the average for all rural LMA's.

The unemployment rates in rural LMA's were generally much higher than those in urban areas. This finding is consistent with recent trends in nonmetro and metro unemployment. Rural LMA's specializing in agriculture had the lowest unemployment rates of all rural LMA's. However, since agriculture is heavily dominated by sole proprietors who, by definition, are not unemployed even if they work at their enterprise very little or have lost a nonfarm supplementary job, this lower unemployment rate in the agricultural LMA's may disguise a great deal of underemployment (12). Rural LMA's specializing in textiles and apparel and in the public sector were also relatively stable as indicated by lower unemployment rates. Contrary to conventional expectations of greater stability, the diversified rural LMA's had slightly higher than average unemployment rates, although the highest rates were in the rural LMA's specializing in durable manufacturing and in mining.

As stated before, economic performance is not merely a static phenomenon. Growth and stability over time are integral to the concept of a good economic performance. In the following section therefore, we examine how these rural LMA's performed over the 1969-84 period.

Trends in Local Economic Growth and Stability, 1969-84

To describe income and employment trends, we computed two types of measures. The average growth rate in each type of LMA was measured by the linear trend found in the average per capita income and total wage and salary employment figures from 1969-1984. 7/ The stability of that growth was measured by how closely the actual income and employment data for those years fit the trend line. 8/

7/ The regression model used to estimate this trend line was:

$$Y=A*\exp(B*TIME)$$

The computational form of this model is:

$$\ln Y = \ln A + B(TIME) + \ln E$$

The estimated coefficient B is treated as the average yearly percentage change in Y. The dependent variables were the average per capita incomes and total employment each year in all LMA's having the given specialty.

8/ The standard error of the estimated Y from the above regression model is used as an indicator of how well the actual data fit the trend line, that is, as the measure of stability.

These two measures are illustrated for per capita income in figure 2. The straight lines are the trend lines, showing the average yearly percentage change in per capita income for the urban and rural LMA's. The slopes of the trend lines show the rate of growth; steeper lines represent faster growth rates. (In the aggregate cases shown here, the parallel trend lines show that the rates of growth in urban and rural LMA's were approximately equal.) The fluctuating lines in this figure are aggregated income figures for the two types of LMA's, for each year. These lines show the impact of the 1975 recession, the strong recovery in the late 1970's, and the sluggishness of the early 1980's.

It is important to understand what these stability estimates do and do not measure. They provide an estimate of the variations that an individual labor market area specializing in a particular industry might experience as a result of national fluctuations in that industry. These fluctuations turn out to be significant. The stability figures do not reflect factors affecting the stability of individual LMA's. Thus, if ownership structures, region of the country, education of the local labor force, or a variety of other factors (including chance) contribute to an individual LMA's being more or less stable than its industry average, that fact is not reflected here. We did a limited analysis of the stability of individual markets, but found the results inconclusive.

Even though per capita income growth was almost identical in urban and rural LMA's in the aggregate, incomes in two types of specialized rural labor market--those specializing in mining and in textiles and apparel--grew significantly faster than the urban LMA's (table 2, col. 1). However, this faster rate of growth in the mining LMA's was accompanied by a great deal of instability (table 2, col. 2). Per capita incomes in the diversified LMA's grew only slightly faster than the average for all rural LMA's, but exhibited considerable stability (the only type of rural LMA that showed more stability in per capita income growth was the public sector LMA). The lowest income growth rates, those in rural LMA's specializing in durable manufacturing and wood products, were also relatively unstable.

The rate and stability of wage and salary employment growth within each type of rural LMA also differed (table 2, col. 3-4). The period 1969-84 saw major fluctuations in the price and availability of oil, and the rural LMA's specializing in mining were strongly affected. Employment in these LMA's grew significantly faster than in any other type of rural LMA, but was also extremely unstable. LMA's specializing in wood products also performed fairly well in terms of employment growth rates, but the stability of that growth was less stable than the average for rural LMA's. The slowest employment growth was in the LMA's specializing in durable manufacturing. This type of rural LMA combined a slow growth rate with the added disadvantage of an erratic growth rate. As was the case in per capita income growth, the LMA's with the most stable rates of employment growth were those specializing in public education and administration and the diversified LMA's, although the rate of growth in these two types of LMA's was only moderate.

The Overall Economic Performance of Rural LMA's

We have noted the considerable variation among the LMA types. Table 3 further clarifies how areas that performed well on one indicator often did poorly on another. As a result, with the exception of the diversified areas and the public education/administration areas, which did well on average, and the durable manufacturing areas, which had a poor overall performance, it is hard to say which specializations are most advantageous. It is useful, however, to examine relative strengths and weaknesses of each type of LMA.

Resource-Based LMA's

Despite the current agricultural crisis, the economic performance in LMA's that specialize in farming has not been noticeably worse than that in the rural economy as a whole. Given the problems with measuring unemployment in the agricultural sector, however, the overall summary score of 25 is suspect (table 3). Nevertheless, the employment growth rates in these LMA's were about the rural average. Although the growth in per capita incomes was relatively slow, the absolute level of per capita income remained high.

The major disadvantage in these types of specialized LMA's is that neither employment growth nor income growth was very stable. Additional analyses showed that per capita incomes in the agricultural LMA's grew the fastest of all rural LMA's during the expansionary period 1970-73, but declined the most during the 1973-75 contraction. Similarly, incomes in these LMA's showed the greatest drop during the 1981-82 recession, and one of the greatest increases during the 1982-84 recovery. Employment growth in the agriculturally LMA's seemed somewhat counter-cyclical. Employment grew moderately throughout the 1970's, although that growth appears to have ceased during the 1980's.

The experience of the mining industry has been strongly linked to the price and availability of foreign oil in recent years. When foreign oil was scarce and expensive, the American oil industry (part of the mining industry as classified here) boomed. The recent oil glut has hurt the mining industry. The economic performance of areas dependent on this industry have also been extremely sensitive to these events.

Recent per capita incomes in these areas have been low, and unemployment rates extremely high. Although these areas grew rapidly during the last 16 years, that growth has been very unstable.

Unlike the instability in income growth in the agricultural LMA's, the instability in mining areas did not correspond very closely to the expansions and contractions of the national business cycle. In general, incomes and employment grew rapidly during the 1970's, and have declined steadily since 1981. LMA's that specialize in mining, however, showed considerable variation in economic performances, especially during the 1980's.

Thus, the common characteristic of the two resource-based LMA types is a sensitivity to national and international fluctuations in the industries on which they depend. Areas specializing in agriculture and mining have always faced some degree of instability. These results suggest, however, that these specialized areas may be particularly vulnerable to the planned and unplanned events in the national and international economies. 9/

Manufacturing-Based LMA's

The three types of manufacturing-based LMA's varied greatly in their economic performance. The LMA's specializing in wood products had moderately high per capita incomes, but income growth was slow and not exceptionally stable. Although total employment in these LMA's grew rapidly during 1969-84, that growth was relatively unstable. Unlike the agricultural and mining specialty areas, however, the performance of the individual LMA's specializing in wood products was fairly uniform, all growing at similar rates during the expansionary periods, and declining at similar rates during most economic contractions.

The textiles and apparel industries have traditionally been low-paying, rural-oriented industries, and have been hard hit in recent years by increasing foreign competition. These industry characteristics are reflected to some extent in the areas specializing in textiles and apparel. Per capita incomes are low, and employment

---

9/ Individual LMA's specializing in agriculture exhibited a substantial variation in per capita income growth, especially during the expansionary period 1975-80. During this period, average per capita income growth in the agricultural LMA's was extremely slow, but the individual variations around this average were quite high. Individual differences in this type of LMA were smaller in terms of employment growth, but those differences appeared to increase over time. Research at the county level suggests that farming areas specializing in export crops are subject to more variability in economic performance than others (13).

growth in areas dependent on these industries is slow, possibly due to the increased tendency of textile and apparel plants to move overseas for cheaper labor. But, the economic performance in these LMA's was not as bad as might be expected: unemployment rates were fairly low, employment growth was moderately stable, and per capita incomes grew rapidly and fairly steadily. Furthermore, during the most recent recovery period (1982-84), both income and employment in the textile and apparel LMA's grew quite rapidly.

Most of the durable manufacturing sector has not performed well in recent years. These industries have been buffeted by the high exchange value of the dollar and by low investments resulting, at least partly, from high interest rates. The economic performance in rural LMA's specializing in these industries has been generally weak. Even though per capita incomes in these areas remained relatively high, income growth was extremely slow and much less stable than average for all rural LMA's. Furthermore, growth in wage and salary employment was very slow and erratic.

Diversified and Public Sector LMA's

Diversification has often been acclaimed as a desirable development strategy for rural areas. Diversity is expected to increase the stability of local economies and enhance the potential for economic growth. Dissenters to this argument say that specialization per se is not necessarily undesirable; the type of industry in which an area is specialized is most important. Some industries grow quite fast and others may be exceptionally stable. A frequent example used to illustrate this counter-argument is a local area dominated by a college or university.

Our analysis suggests that both arguments have merit. Income and unemployment rates in both the diversified LMA's and the LMA's specializing in public education and administration were similar to those in rural areas in general. The rates of income and employment growth in both types of LMA's were moderate. Both LMA types, however, exhibited a great deal of stability. Both the diversified LMA's and the LMA's specializing in the public sector on average grew quite slowly during economic expansions, but declined only slightly during economic contractions. Thus, although these two types of rural areas may not have benefited much from the good times in the national economy, neither did they suffer much from the bad times. Of all the types of rural LMA's, these two appear to offer the most hope for a future of steady, enduring economic growth.

Local Educational Composition and Economic Performances

The seven rural LMA's types were classified by the proportion of the local population (aged 25 and older in 1980) who had finished high school. High-education LMA's were those whose proportion of high school graduates was higher than the average of urban LMA's; the remaining LMA's were grouped into a low-education category. All textiles-apparel LMA's, which are located entirely in the South, fell into the low-education category. Although this is a crude indicator of the educational attainments of a local population (and an even cruder measure of human resources in an area), the results provide some further insights into the factors related to local economic performance. 10/

Labor market types with greater concentrations of people with at least a high school education had consistently higher per capita incomes, although in the LMA's specializing in mining, these differences were minimal (table 3, cols. 1-2). The large income differences based on the educational attainments in the agricultural and wood products LMA's may represent regional differences. Except for LMA's specializing in wood products, the average unemployment rates in 1985 were consistently lower in the better educated LMA's (table 3, cols. 3-4).

There is little association, however, between education and rate of income growth (table 4, cols. 1-2). There are no statistically significant differences in per capita income growth between better educated and less educated LMA's. One possible explanation may be an increase in transfer payments in the LMA's with lower levels of education. In contrast, employment growth does seem to be strongly related to education. In most of the specialized LMA types, except those specializing in durable manufacturing, wage and salary employment in LMA's with higher proportions of high school graduates grew considerably faster than in those with lower proportions. In sum, local economic performance appears related to education. The relationship is a complicated one, however, and this analysis has only begun to illuminate it.

Conclusions

This research provides evidence of the great variety in rural economic performance. In a sense, the analysis offers some reason for optimism about the future of rural America. Rural areas are not all made up of the stagnating or declining economies depicted so often in the press.

10/ The causal relationship between education and economic performance is not always obvious. Well-educated workers are much more geographically mobile than those with less education. In an area with a poorly educated population and a declining economy, the low level of education may have contributed to the poor economic performance, or the poor performance of the local economy may have contributed to the outmigration of the better educated workers. To determine the direction of causality in this situation, we need longitudinal data on both the economic performance of local areas and on the individuals living in those areas.

Many rural areas are performing well. However, many other areas are not performing well, and all the LMA's delineated have lower average per capita incomes and higher unemployment rates than urban areas as a whole.

This analysis demonstrated that the diversified rural LMA type and those specializing in the public sector performed better than other rural LMA types. Their relatively strong economic performances were primarily the result of moderate but stable economic growth. Many policymakers prefer a slower, more constant, rate of growth to a faster, more variable rate. An erratic growth rate makes it difficult for local officials to predict and to adjust to the changing needs of the population, whereas steady growth enables the community to anticipate future needs and to adapt the physical and social infrastructures to keep pace.

The analysis also suggested the considerable variety among the specialized rural LMA's. For example, the durable manufacturing LMA's, which ranked lowest overall, had the highest per capita income in 1984. The economic performance of most of the specialized LMA's is strongly linked to the national and international conditions affecting the specialty industry. National policies, whether designed to protect declining industries, to encourage high-growth industries, or to boost the overall economy, will have significant local effects on these specialized rural LMA's.

This analysis needs to be used with an understanding of its limitations, though. It did not account for all variations in local rural economic performance. The performance of a local economy is a complex, multidimensional phenomenon. The productivity of plants or the opening and closing of plants in a particular area is the result not only of the characteristics of the local industrial structure, but also of other local, national, and international interconnections. For example, the final part of our analysis pointed up the importance of a well-educated population for strong economic performance. But the specific on-the-job skills and experiences of the local labor force, the performance of plants in other locations, and the political and economic decisions made by State and national policymakers, both here and abroad, can also be expected to affect what happens locally.

References

1. Bender, Lloyd D., and others. *The Diverse Social and Economic Structure of Nonmetropolitan America*, RDRR-49. Economic Research Service, U.S. Department of Agriculture, 1985.

2. Brewer, H.L. "Measures of Diversification: Predictors of Regional Economic Instability." *Journal of Regional Science*, vol. 25, 1985, pp. 463-471.

3. Brown, Deborah J., and Jim Pheasant. "A Sharpe Portfolio Approach to Regional Economic Analysis." *Journal of Regional Science*, vol. 25, 1985, pp. 51-63.

4. Conroy, Michael E. "Alternative Strategies for Regional Industrial Diversification." *Journal of Regional Science*, vol. 14, 1974, pp. 31-46.

5. Grossberg, Adam J. "Metropolitan Industrial Mix and Cyclical Employment Stability." *Regional Science Perspectives*, vol. 12, 1982, pp. 13-35.

6. Hackbart, Merlin M., and Donald A. Anderson. "On Measuring Economic Diversity." *Land Economics*, vol. 51, 1975, pp. 374-378.

7. Henry, Mark; Mark Drabenstott, and Lynn Gibson. "A Changing Rural America." *Economic Review*, Federal Reserve Bank of Kansas, July/August 1986, pp. 23-41.

8. Jackson, Randall W. "An Evaluation of Alternate Measures of Regional Industrial Diversification." *Regional Studies*, vol. 18, 1984, pp. 103-112.

9. Killian, Molly S. "Diversification and Specialization: The Industrial Structures in Rural Labor Markets." Paper presented at the annual meetings of the Rural Sociological Society, Salt Lake City, UT, Aug. 1986.

10. Kort, John R. "Regional Economic Instability and Industrial Diversification in the U.S." *Land Economics*, vol. 57, 1981, pp. 596-608.

11. Malecki, Edward J. "Towards a Model of Technical Change and Regional Economic Change." *Regional Science Perspectives*, vol. 13, 1983, pp. 51-60.

12. Nilsen, Sigurd R. *Assessment of Employment and Unemployment Statistics for Nonmetropolitan Areas*, RDRR-18. Economic Research Service, U.S. Department of Agriculture, 1979.

13. Sommer, Judith E., and Fred K. Hines. Declining Farm Exports: Recent Changes in Agricultural Trade and Differential Impacts on Nonmetro Counties of the U.S. Economic Research Service, U.S. Department of Agriculture. Forthcoming.

14. Tolbert, Charles M., and Molly S. Killian. Technical report of the Rural Labor Markets Research Project. Economic Research Service, U.S. Department of Agriculture. Forthcoming.

15. U.S. Department of Commerce, Bureau of the Census. 1980 Census of the Population and Housing. Summary Tape Files 3 and 4, computer tapes.

16. U.S. Department of Commerce, Bureau of Economic Analysis. Employment and income files, computer tapes.

17. U.S. Department of Labor, Bureau of Labor Statistics. County unemployment files, computer tape.

Table 1 -- Average per capita incomes and unemployment rates in LMA's

LMA types	Per capita income, 1984 1/	Unemployment rate, 1985 2/
	Dollars	Percent
Urban	11,905	7.57
Rural	9,973	9.48
Specialized:		
Agriculture	10,739	8.53
Mining	9,458	11.73
Wood products	10,241	9.61
Textiles-apparel	9,328	8.87
Durable manufacturing	10,893	10.87
Public education/ administration	9,599	9.10
Diversified	9,874	9.60

1/ Data source is (16).
2/ Data source is (17).

Table 2—Per capita income and wage and salary employment growth and stability in LMA's, 1969-84 1/

LMA types	Per capita income growth 2/		Wage and salary employment growth	
	Trend	Instability 3/	Trend	Instability
Urban	1.27	1.41	1.83	.62
Rural	1.28	2.91	1.71	1.27
Specialized:				
Agriculture	1.10	7.62	1.79	2.09
Mining	1.50	5.78	2.17	3.17
Wood products	1.04	3.05	1.83	1.84
Textiles-apparel	1.46	2.34	1.64	1.45
Durable manufacturing	.63	3.86	.46	3.40
Public education/ administration	1.19	1.79	1.74	.78
Diversified	1.39	2.05	1.73	1.04

1/ Data source is (16).
2/ Per capita income figures are adjusted to 1967 dollars.
3/ For these measures of instability, lower numbers indicate greater stability in the LMAs.

Table 3—Summary economic performances of rural IMA's 1/

Rural IMA types	Per capita income	Unemployment rate	Income growth	Income stability	Employment growth	Employment stability	Summary performance 2/
Specialized:							
Agriculture	6	7	3	1	5	3	25
Mining	2	1	7	2	7	2	21
Wood products	5	3	2	4	6	4	24
Textiles-apparel	1	6	6	5	2	5	25
Durable manufacturing	7	2	1	3	1	1	15
Public education/ administration	3	5	4	7	4	7	30
Diversified	4	4	5	6	3	6	28

1/ The numbers in the first six columns in this table refer to the relative rankings, from low to high, of the seven IMA types on each of the six economic performance factors (1 = worst performance on that indicator and 7 = best performance on that indicator).

2/ The summary score is the sum of the individual rankings.

Table 4—Per capita incomes and unemployment rates in LMA's with different educational compositions 1/

LMA types	Average per capita incomes, 1984 2/		Average unemployment rates, 1985 3/	
	High education	Low education	High education	Low education
	Dollars		Percent	
Urban	12,721	10,984	7.16	8.43
Rural	10,971	9,541	7.94	10.09
Specialized:				
Agriculture	11,881	9,597	5.79	10.36
Mining	9,619	9,404	8.65	12.94
Wood products	10,850	9,226	11.37	8.90
Textiles-apparel	4/	9,328	4/	8.87
Durable manufacturing	11,586	10,547	9.22	11.69
Public education/ administration	10,249	9,194	8.04	9.00
Diversified	10,764	9,621	8.71	9.86

1/ See text for definition of high- and low-education categories.
2/ Data source is (16).
3/ Data source is (17).
4/ All of the textiles-apparel specialty LMA's fell into the low-education category.

Table 5—Per capita income and employment growth rates in IMA's with different educational compositions 1/

IMA types	Per capita income growth, 1969-84 2/		Wage & salary employment growth, 1969-84	
	High education	Low education	High education	Low education
Urban	1.60	1.43	2.13	1.29 *
Rural	1.16	1.34	2.04	1.57
Specialized:				
Agriculture	1.20	.99	2.17	1.35 *
Mining	1.61	1.59	5.04	1.66 *
Wood products	1.01	1.10	2.26	1.43 *
Textiles	3/	1.46	3/	1.64
Durable Manufacturing	.39	.75	0	.73
Public education/administration	1.42	1.03	2.23	1.49
Diversified	1.07	1.50	1.91	1.67

* = significantly different rates of growth associated with educational compositions.

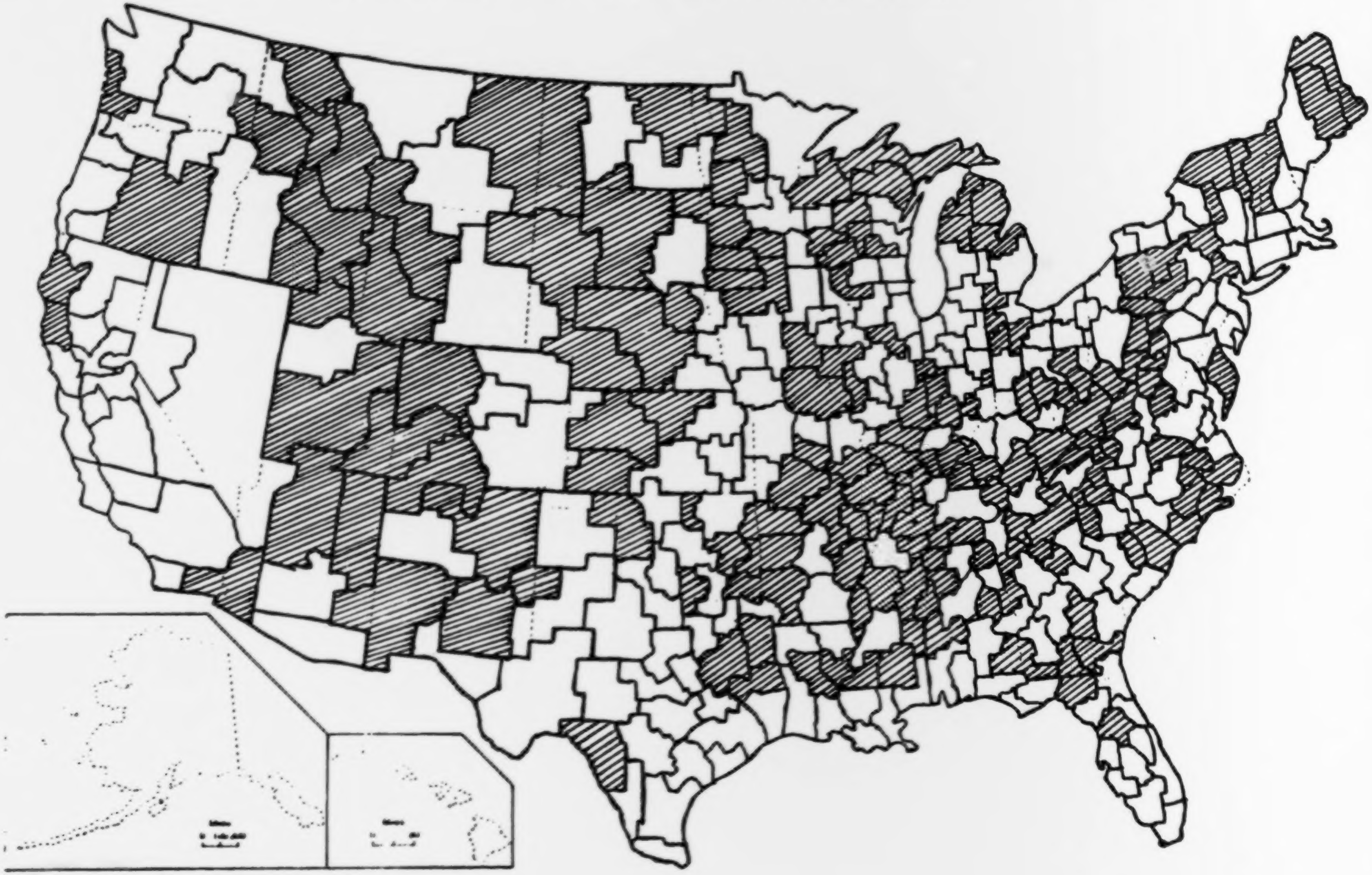
1/ See text for definition of high and low education categories.

2/ Per capita income figures are adjusted to 1967 dollars.

3/ All of the textiles-apparel specialty IMA's fell into the low education category.

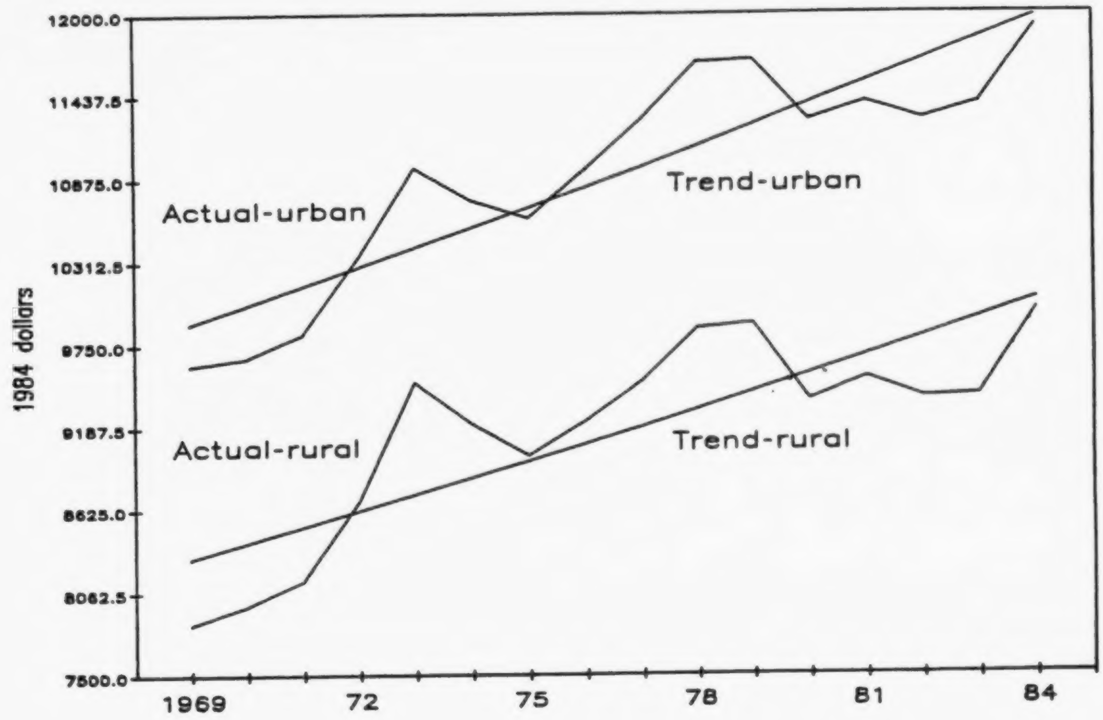
Source: (16).

Figure 1--Rural labor market areas in the United States



Note: Alaska and Hawaii are single labor market areas

Figure 2--Per capita income growth, 1969-84,urban and rural labor market areas



CHAPTER 9

RURAL POLICY OBJECTIVES: DEFINING PROBLEMS AND CHOOSING APPROACHES

J. Norman Reid and Richard W. Long

Abstract. While the U.S. has taken a number of actions called "rural policy," these have seldom merited the name. An effective policy requires a clear understanding of the problems it seeks to address and implies a choice among alternative goals and strategies for achieving them. The complicated nature of rural areas and rural problems and the structure of the U.S. governmental system increase the difficulty of creating effective rural policies. While it is unlikely that the U.S. will ever embrace the kind of consistent policy known in Europe, where governments speak with more nearly a single voice, the quality of public actions to benefit rural areas can be greatly helped by careful examination of rural needs and alternative strategies.

Developing a "rural policy" for the 63 million people who live in America's open country and small towns is a complex task. The complexity stems from disagreements about what are the most important rural problems, the proper approaches to dealing with them, and, fundamentally, about what constitutes a "policy." The process of sorting out these disagreements is further complicated by the use of ambiguous language, which masks the real points of contention. The fragmented structure of our governmental system makes the tasks of defining the most important problems, setting objectives, and preparing a consistent strategy even harder.

In this chapter, we review many of the intellectual and political issues associated with conceptualizing and developing a rural policy, beginning with the difficulty of defining the term itself. We then consider briefly the rural conditions that inspire various formulations of the "rural policy problem." We next discuss some alternative approaches to achieving policy objectives. Finally, we describe some institutional obstacles to the development of a comprehensive rural policy for the United States.

The Meanings of Policy

The term policy is value laden and easily lends itself to ambiguous use. Its first and most restricted meaning is a "guiding and consistent course of action."

The authors are political scientists in the Agriculture and Rural Economy Division, ERS.

In this usage, policy has many positive connotations. It implies both comprehensiveness and wisdom or, failing these, at least prudence and forethought. Politically, a policy signifies that the matter is of sufficient concern and importance to merit a place on the national agenda.

A second, broader meaning is misleadingly similar, but in an important sense, contradictory. Single actions such as separate programs or provisions of legislation are often called a policy. The requirement in the Rural Development Act of 1972 that agencies locate any new facilities in rural areas is sometimes referred to as "a rural policy," for example. It is not uncommon for sets of actions (or sometimes even inaction) on a particular subject to be described as a "policy," regardless of whether they embody a coherent set of guiding principles or are merely a collection of loosely related but individual measures. In some cases we refer to seemingly unrelated actions as a "policy" where they cumulate to some identifiable outcome. For example, the largely unintended consequences of Federal housing and highway programs have been characterized as a national policy fostering suburban growth. "Policy" is used in this de facto sense nearly as often as in its first meaning, though in the de facto sense it has fewer positive connotations.

Discussions about rural policy are filled with inconsistent and often even contradictory uses of the word "policy," sometimes by the same speaker. Yet the distinction is vital. Demands for a better rural policy almost always imply demand for a more comprehensive and consistent policy, though for pragmatic reasons they are much more easily addressed by proposals that fall short of this ideal. There are few examples of comprehensive U.S. policies on any subject, simply because they are difficult to achieve and may not, in fact, be as highly desired by public officials as their public pronouncements suggest. But a policy may have little more than symbolic value, as a sign that an issue is receiving attention, if it embodies so many political compromises that it has lost its clarity of logic or consistency of purpose or method. While we do not mean to imply that symbols are an unimportant part of the policymaking process, our chief concern here is with substance. Thus, in the balance of the chapter we will concentrate on rural development policy in the first sense, as the vehicle for conveying a logic and a consistency of purpose to the government actions it seeks to guide.

What Is The Rural Problem?

While conditions in rural areas can be measured objectively, differences in the values and assumptions of the people interpreting them produce substantially different definitions of what are the important rural problems. These distinctions are easy to overlook but attention to them is vital to establishing effective policies.

The most salient condition of rural America, in terms of its relevance for policymaking, at least, is its economic disadvantage in comparison with urban areas. Rural residents generally have lower incomes and living standards. Rural median per capita income reached about 80 percent of the metropolitan level in the late seventies, its historical peak. In the current decade, it has receded from that mark by several percentage points. Three factors contribute to the lag in rural income and standard of living. One is the chronic and pervasive urban-rural gap in highly rewarded skills and opportunities (see chapters 2 and 7, above). A second is the vulnerability of small and undiversified rural places to cycles in some basic rural industries, especially agriculture and natural resources, which have experienced both long-term contraction, and, in the case of agriculture, a recent dramatic decline in the number of farm owners and workers (see chapters 4 and 5, above). The third is the intense poverty found particularly among minority groups in several regions.

The Nation was reminded of its intense and significant rural poverty problems in the late 1960's by the report of the President's Commission on Rural Poverty, The People Left Behind. That report traced the urban riots of the period, in part, to the exportation of Southern rural poverty to the big cities of the Midwest and Northeast. Severe rural poverty was still a topic of considerable attention in the early 1970's when what later became the Rural Development Act of 1972 was under consideration.

In addition to income disparities, rural areas generally trail the big cities and suburbs in providing some of the basic services and conditions we associate with a better quality of life, or even minimal well-being. The level of public services, such as treated water supplies, medical facilities, and good roads and highways, though closer to national norms than often imagined, still lags behind the big cities and suburbs (8).1/ This is primarily because rural places face higher unit costs for many services stemming from their smaller scale and low population density. Rural people must pay more than their urban cousins for some services or else do without them.

The long-term contraction of the agricultural sector with the accompanying changes in its structure is also a salient feature of rural areas. These changes cause concern to many metropolitan people as well as country people. Concentration of farms into fewer, larger, and more mechanized units--employing fewer people--continues, especially in the regions that depend on farm income the most (chapter 4). The resulting displacement of farm families is a source of economic problems for them and sometimes for their nonfarm neighbors, but it also elicits sympathy from a much wider segment of the population. Many Americans believe that it is important to preserve the social and economic unit called the family farm.

Another feature of many rural communities is a stagnant or shrinking population base. Many people have left rural areas; many who remain consider that decision fairly frequently. The economic disadvantages of life in rural places are balanced to various degrees by advantages, including smalltown lifestyles, access to recreational opportunities, lower costs, family and community ties, and other factors.

1/ Underscored numbers in parentheses refer to sources listed in the References section at the end of the chapter.

But economic changes in either the countryside or metropolitan areas can alter the balance of advantages and disadvantages of rural life. Sometimes the scales tip gradually, sometimes suddenly. Slow decay in their comparative standard of living inspires some rural people, especially young ones, to move to other regions that are more prosperous. A factory closing or a drop in farm income, on the other hand, suddenly throws some rural people out of work, perhaps forcing them to face an immediate choice about relocation. Some leave their smalltown homes with extreme reluctance, only because they see no other option; others leave by choice, though perhaps with regret, after calculating the relative advantage of doing so.

People bring their own values and interests to rural policy considerations just as to other subjects, based on their professional training or the role they see for themselves in solving social problems. Officials in the various Federal agencies that administer specific programs, political leaders, and economists, to name a few important groups, tend to have different perspectives, though these perspectives cut across the groups as well. Consequently, there are several viewpoints on the most pressing problems and those that are most tractable.

Choosing Among Policy Objectives

Among the major controversies in formulating the rural policy problem are whether the policy should focus on people or places; whether it should emphasize the most disadvantaged places or those with a reasonable chance of success; and whether it should emphasize social equity or economic efficiency. While these alternative formulations are neither exhaustive nor mutually exclusive, they illustrate well the basic dilemmas facing policymakers.

The people versus places controversy has become a perennial part of the rural policy debate. On one side are those who believe that the economic problems of rural people can be addressed more efficiently when location factors are removed from the equation. The heart of the problem in this view is human suffering from poverty or low income. The place itself is secondary. Solutions that ignore the location and concentrate on the people are usually cheaper (and therefore more feasible). Requiring those who are helped to sacrifice, if necessary, their location preference is not unreasonable in this view, especially since the costs of keeping a small town alive or creating new opportunities there many be many times higher than the cost of relocating a few individuals. For example, if people can escape distress by moving to places with greater economic opportunities, it is reasonable to expect them to do so, as so many before them have done, including most of the people who originally emigrated to this Nation and those who peopled the American West. Welfare or basic education programs that help the rural poor need not differ much from those for the urban poor and often can be addressed efficiently and professionally without reference to the size of the community, according to people who hold this view.

Those who emphasize place define the problem more broadly. They want to save small communities and protect peoples' ability to continue to live where they prefer, and they believe that effective remedies for human problems often require attention to the distressed community itself. Those who hold this view include social, as well as economic, concerns in their definition. They also sometimes argue that it is more efficient to use existing investments in the infrastructure already in place in small towns than to relocate people.

A second controversy divides the issues differently. The "worst first" versus "growth poles" question also illustrates how the definition of the problem and the solution are intertwined. The "worst" in this case means the worst problem, either in human terms (the poorest people) or geographic terms (the most distressed community). Those who wish to deal with the worst first believe that intervention is justified in proportion to the severity of the need. The real problem, in this view, is the very poor. The public case for rural programs is usually explicitly or implicitly based on the severe economic problems of the poorest people, living in the most difficult circumstances. Logically, then, resources should be targeted so that those people and places are assisted first, even though fewer people may benefit and results will almost certainly be more difficult to achieve.

Advocates of finding the "growth poles" formulate the problem in a different way. While they sympathize with the most severely distressed, they argue that many of the worst problems either cannot be addressed directly or can be more efficiently addressed by indirect means. In the context of place, for example, they argue for concentrating resources on the places in every region that can be helped to prosper at the lowest cost (often the places that will do the best with little help), so that there will be at least one economic engine to drive each region. The places in the worst shape would quickly sop up all the available resources, they believe, with little effect. Furthermore, they are generally willing to extend assistance to a wider set of people and places. In the calculus of "the greatest good for the greatest number," effective assistance for many more (relatively) less needy people may reasonably outweigh much more intense (and probably less effective) assistance for the poorest of the poor, in this view.

Economists, especially, articulate another distinction among problems and objectives. They speak of "equity objectives" and "efficiency objectives." Equity objectives are value choices (often used in a sense broader than fairness alone). Meeting them usually requires an expenditure of resources. The most commonly held and articulated equity objectives of a rural policy are to raise the levels of income for rural people, allow people to live where they prefer and still have a decent standard of living, and allow people to make a reasonable living by operating a family (small) farm if they choose.

Defining the objectives of a rural policy in terms of economic efficiency is much more complex. Economists argue that economic problems may result from one of two causes: unacceptable distribution of wealth or income--as defined by prevailing values, or defects in the operation of economic markets. They take it as given that economic markets normally operate in a socially beneficial fashion, but most agree that market imperfections such as lack of information, immobility, monopolies, or permitting firms to avoid some of the costs of doing business (externalities) sometimes keep markets from making the most efficient allocation of resources. Disparities in urban and rural economic vitality, some argue, are basically the result of such market imperfections. Where rural economic disadvantages stem from market imperfections, correcting them will improve rural conditions while increasing total national wealth, without requiring major commitments of program resources.

For obvious reasons the efficiency formulation for dealing with rural-urban disparities is more politically appealing than the equity problem formulation. It invites "value free" intervention and promises to increase total wealth. But it must be regarded with caution. Discovering and seeking to remedy false "market failures" will injure rather than improve the economy. The question quickly becomes: are rural economic disadvantages (generally or in specific cases) the result of market failures? Answers differ. If there were agreement that the answer is yes, there would also be general agreement about what a rural policy should do: identify and remove market imperfections. If the answer is that market failures explain little or none of the economic disparities between rural and urban conditions, then the problem is not technical but rather a matter of values.

Choosing a Policy Strategy

Rural problems, however they are formulated, can be addressed by various policy strategies, each with its own set of programs. Several distinct strategies are definable, all of which are in partial and simultaneous operation in the United States. These include macroeconomic or national strategies; directed strategies such as sectoral (including industrial and agricultural) and categorical policies; "people policies" (like the "safety net"); and regional approaches, either limited to defined areas within a State or region, or the whole national rural territory.

The choice of a policy strategy is dictated by the objectives chosen, but selecting a single approach (or a coherent synthesis of approaches) is as fundamental to policymaking as selecting a single course of treatment is to good medicine. Any policy strategy requires the sacrifice of some options to achieve other, more important, ones. Without such choices, there may be a policy in name, but none in fact, only a collection of programs that may not even attempt to address a consistent set of objectives. By refusing to make such goal choices and adopting parts of many, often inconsistent strategies, the painful choices can be sidestepped, but the result is to have no rural policy, or at least one whose effectiveness is diluted by flaws in its conception.

The Variety of Policy Strategies

Rural concerns are addressed through a variety of Federal policy strategies. Some have the promotion of rural development as their principal objective.

Others also affect the chances for development, though they were created for entirely unrelated purposes. Together they make up the total rural policy picture, and it is important to understand each.

At the most general level, policy strategies can be divided into two groups: national policies and those directed at a specific sector or region. National economic policies are intended to regulate the economy at a general level. The principal examples are monetary and fiscal policy, including both tax and general spending programs, and other general national programs such as those governing foreign trade. While these programs operate at a macroeconomic level, they nonetheless can have sectoral and territorial implications as well (chapter 10).

Most policy strategies, on the other hand, concern a narrower part of the national interest, and in this sense they can be regarded as being directed. These can be further distinguished by whether they are directed according to economic sector or geography. Sectoral policies focus on the performance of particular industries. A prime example is U.S. agricultural programs, which regulate demand, supply, and price of the principal farm commodities. For the most part, sectoral policies are relatively foreign to the United States. Most sectors operate with only sporadic government intervention that does not amount to a real sectoral policy. In this respect, the United States differs from Europe, where policies for such sectors as industry, transportation, and housing are common.

Regional policy strategies focus on the problems of specific geographic areas. U.S. history is replete with examples of regional approaches to development. One class of regional strategies addresses the problems of a well-defined, contiguous area, such as the Tennessee River valley, whose interests are addressed by the Tennessee Valley Authority, or the region defined by the Appalachian Mountains, aided since the early sixties by a range of programs administered by the Appalachian Regional Commission.

A second class of regional strategies, territorial strategies, addresses problems of broadly similar areas that are not geographically concentrated, rural and urban programs, for example. In addition, a number of programs have addressed the problem of localized pockets of poverty in the Nation's cities and rural areas.

Matching Goals and Strategies

These distinctions have more than academic significance. The choice of strategy affects the chances the policy will succeed in reaching its objectives. In practice, however, this is often misunderstood, sometimes with unfortunate consequences.

National Economic Policies and Directed Development Policies. The fundamental strength of the rural economy now seems tied more and more to the performance of the national economy, leading some observers to argue that if the macroeconomy prospers, the rural economy will too. Some, in fact, argue that only macroeconomic performance matters and that programs that seek to modify its effects work against national economic performance overall. But it is important to observe that the rural economy does not always move in parallel with macroeconomic trends (see chapter 10). Recently, for example, while the national economy has been growing, the rural economy has lagged, with unemployment rates that, until very recently, have been rising despite an overall decline nationally.

Structural weaknesses in the rural economy inhibit its sharing fully in national economic growth. Macroeconomic policy, by its very nature, is not equipped to respond to territorial or sectoral variations in economic performance.

Sectoral and Regional Policies. Directed programs, such as sector or region-specific "policies," are frequently initiated to address the structural weaknesses that produce uneven performance within the national economy. While the distinction between sectoral and regional policies is clear in the abstract, they have sometimes been confused in practice, with sectoral policies being applied when the problem is regional, and vice versa. Such confusion is understandable when there is a strong perception that sectoral and regional interests are closely linked.

The past history of policies for rural areas illustrates the results of such confusion. Historically, the most salient facts about farming and rural areas were the concentration of farming in rural areas and the reliance of the rural work force on agricultural employment. From these facts grew the perception that the rural and agricultural economies were synonymous. Programs supporting the agricultural sector gained political support as a means of helping the rural economy in general.

Over the years, the rural economy has diversified, and it now hardly resembles itself as it was 30 or even 20 years ago. But perceptions have not adjusted to keep pace with these changed realities. It remains common to think of the rural economy in terms of the way rural land is used, three-fourths of which remains in agriculture and forests, even though about 70 percent of rural workers now depend mainly on other industries for their livelihoods. As a result, programs such as farm price supports, which are directed toward a single sector (and one declining in relative importance within the rural economy) fail to address more fundamental problems in the rural economy or those plaguing other lagging sectors.

Alternative Development Programs

Mismatches between goals and means can lead to both wasted resources and distortions in policy results. As a strategy for addressing regionwide problems, sectoral programs at best risk wasting resources by addressing comparatively low priority issues. At worst, by attacking only part of the issue, they may produce ineffective results and give inappropriate signals to markets that lead to distorted patterns of investment.

Infrastructure development, the construction of roads, bridges, water supply, wastewater treatment, electricity, communications, and the like, is traditionally important in the economic developer's kit of tools. Although

248

investments in public works date from the earliest days of the Republic, they have increased in importance in recent years, aided by numerous Federal Government programs. Transportation and communications facilities have been built to break down the barriers of space that separate rural areas from the national economic and social mainstream. Transportation infrastructure is thus not only a capital investment, but it fundamentally alters "distance" and thus attacks a basic rural disadvantage; it "de-ruralizes" rural places. Other local infrastructure has been justified on the grounds that it lowers the production costs of businesses and thus induces them to settle in rural areas. But smokestack industries, the traditional beneficiaries of these investments, now contribute fewer and fewer new rural jobs, and further capital investments are increasingly hard to justify based on their expected contribution to economic development (see chapter 13).

In the last two decades, direct financial aid to businesses through direct or guaranteed loans has been popular, and the Economic Development Administration, Farmers Home Administration, and Small Business Administration have provided billions of dollars in capital for business startups or expansions (see chapter 14). In addition to these, the Federal Government has provided numerous inducements to business growth, both direct and indirect, through the tax code; included are special allowances for depreciation of business capital, allowances for hiring disadvantaged workers, and capital financing through tax-exempt industrial revenue bonds. A number of States operate industrial development banks to provide investment capital to businesses. And many local governments have offered additional incentives in the form of tax concessions and other benefits to induce firms to move to their communities.

As the competition for jobs has heated up, so have the lengths to which communities have gone to attract them. Unfortunately, communities rarely make a full accounting of the benefits and costs of these inducements; the burden of lost taxes and increased spending for facilities and services has probably outweighed the gains in new jobs and increased income in many localities. If all the facts were known, many business recruitment programs might never be started.

Increasingly, the development of human capital is viewed as a critical rural development need. Human capital--the sum of the skills and knowledges of rural people (chapter 15), as well as the strength of its institutions and the ability of its leadership (chapter 16)--is especially important for promoting smooth adjustments to economic change. In addition, it is an essential factor if rural people and institutions are to make their way in the information- and technology-based future toward which we appear to be headed (chapter 15). While human capital is built on a base of formal education and training, equally important are attitudes and values conducive to development that are more difficult to inculcate.

Nondevelopmental Programs

In thinking about rural policy options, it is important not to overlook other programs that, while not principally intended to stimulate rural development, nonetheless have important consequences for rural economies (chapter 11). Many programs have consequences for concentrated areas that are quite unintentional, some of which are as significant as programs designed for this purpose. Social security retirement benefits, for instance, outweigh most development programs in their scope and impact on rural income and population growth. Virtually all rural net growth between 1980 and 1985 is attributable to retirement-destination counties. Other programs may retard growth. A balanced assessment of rural strategies requires that unintended program impacts be examined as well as those of explicit rural development strategies.

Complicating Factors

It is easier to understand the value of clear objectives and appropriately designed programs than it is to achieve them in practice. Several factors complicate rural policymaking, often frustrating the process of building responses to rural problems. These fall into two categories: the structure of the rural economy, and the nature of the rural policy formulation process.

The Structure of the Rural Economy

Both the diversity of the rural economic base and the essential character of being rural make the task of making and carrying out policies and programs more difficult in rural settings.

Rural Economic Diversity. While a particular rural area often depends on a narrow range of economic sectors, the rural economy as a whole is composed of such a wide array of specializations that it is difficult to generalize about the rural economy. Of the 2,400 rural counties, 700 depend primarily on farming, 680 on manufacturing, and 200 on mining. Recreation and retirement, government operations, and other economic characteristics or mixes are predominant in the balance of rural countries.

This diversity makes it especially difficult to formulate a single policy that is entirely appropriate for all rural areas. Any rural policy must therefore be flexible enough to deal with a variety of local circumstances; oversimplified, "one size fits all" approaches can be grossly inappropriate. It is increasingly difficult to conceive of addressing rural economic problems through programs directed at the performance of a single sector, such as agriculture. Rural programs, like urban programs, need to be conceived in broader terms than they have been in the past.

At the same time, rural programs must take account of the narrow economic bases of individual rural areas, many of them in fact one-industry towns. Because local economies may show sensitivity to occurrences within a narrow sectoral band, it is difficult to assume that a shakeup in one locally important sector will be offset by the performance of other sectors. In diversified urban economies, that can happen; in specialized rural economies, a change in the fortunes of any industry is likely to spell economic disaster for some community. To limit the damage from structural adjustment, rural policy needs to be mindful of these sensitivities.

The Rural Context. The effectiveness of rural programs is also affected by fundamental characteristics of rural areas themselves.(5, pp. xv-xxxi) Rural areas include large amounts of sparsely populated open country, and while most also contain small cities and towns, their population densities are far lower than in urban areas. In addition, many rural communities are relatively isolated from the influence of large urban centers and even from significant contact with neighboring communities of more modest size. Finally, the tendency for individual localities to specialize in a narrower range of industries means that many rural areas depend heavily on a small number of firms.

Such characteristics may cause programs to operate differently in rural settings and they also create a need for special approaches to administering rural programs. For one thing, the costs of providing public services are sensitive to the size of the population served and the range of territory over which they must be provided. Costs per unit of service are higher when fewer units are provided, typically the case in rural areas. At the same time, the costs of transporting services to users (water, electricity) or users to services (students) is higher for dispersed rural populations (2, 3). The distances that separate rural governments make it harder for them to reduce costs by providing services cooperatively. As a result, it is more expensive for rural citizens to enjoy the level and quality of services urban residents have come to expect.

Most small rural governments cannot afford to hire professional staff, and thus rely mainly on part-time, noncareer citizen officials for leadership (7). Many rural officials lack the training that would vest them with knowledge and skills needed in the increasingly complex governmental environment. The thinness of rural leadership capacity means that it is unrealistic to expect the network of rural local governments to be prepared to lead the adjustment of their economies without outside assistance.

These characteristics limit the types of programs and strategies that can be effective in rural settings. Rural communities' lack of management staff puts them at a disadvantage in applying for grants-in-aid on a competitive basis. To overcome this obstacle, several Federal programs (for example, the Community Development Block Grants program) guarantee small communities a fixed share of available funds. Others are administered through State or local offices that can help develop the plans needed to meet Federal requirements.

Addressing current rural economic problems is often too big a job for individual communities to handle alone. Many communities, especially those located a great distance from urban areas, may have little hope of creating enough local jobs to replace those they are losing. At the same time, as they lose population and income, many communities face increasing difficulty in providing and financing adequate levels of public services. For many rural places, cooperation among communities on an areawide basis to provide public services or expand economic opportunities within the commuting range of rural workers may be a sensible approach.

The small size of most rural governments precludes them from having the in-house capacity to develop appropriate responses to complicated governmental or economic problems. Most rural communities depend heavily on part-time, and often volunteer, staff. The difficulties they face in responding to challenges are compounded by the recent decentralization in government, which has devolved increasing responsibilities onto them while taking away some of their resources. Programs to enhance or supplement the management capacity of rural governments could be useful.

Because rural areas differ from urban areas in spatial organization and economic structure, there is little reason to expect that the same programs are appropriate for both rural and urban areas. Special rural policies that are sensitive to these differences, along with separate institutions to operate or monitor them, may be merited.

The Governmental and Political System

Several aspects of our governmental and political system discourage policies that are internally consistent, targeted to specific goals, or even clearly relevant to the problem. These aspects principally have to do with a decisionmaking structure that divides responsibility both among institutions at the national level and between levels of government. But one could add to these structural facts some observations about the political process as well: a dramatic imbalance among rural groups and interests in the political power they wield and the public sympathy they command, and the particular difficulty of American decisionmakers in confining assistance to the specific people or areas whose needs justify a program, no matter how compelling the logic of such targeting.

Fragmented Responsibility in Congress. With the exception of farm policy, issues concerning national parks and the use of public lands and, for a time in the seventies, energy policy, few aspects of policy relating to rural areas are sufficiently compelling to command the sustained attention of presidents. By default, therefore, rural programs and policy strategies are much more often initiated within Congress to serve objectives largely determined within that body.

Because the process of policy formulation itself shapes program content, Federal Government treatment of rural areas reflects the way Congress does its work. Because Congressional committees are organized around sectors and interests, programs are usually sectoral or interest-oriented, rather than territorial. Unless an issue commands a high degree of national attention, rarely the case for rural concerns, neither presidents nor party leaders in Congress are likely to intervene successfully in the work of the committees.

Attention to rural issues is divided among a number of committees. Of particular concern are the agricultural committees, which create not only farm programs but also many rural development programs. Also important are the agriculture subcommittees of the two appropriations committees, which control the financial resources for both sets of programs. Programs for highways, health, small businesses, and regional economic development, also important to rural areas, fall under the jurisdiction of other committees. This segmentation of the policy process handicaps the formulation of a consistent rural policy. Each issue is handled individually, one at a time, often in separate decisionmaking arenas. Although many programs interact with each other in complementary or competing ways, they are often created independently, with little consultation between the rival committees.

Formal mechanisms for coordinating rural policy exist outside the Congress, in the Office of Management and Budget (OMB) and across the executive branch under the formal leadership of the Department of Agriculture. Neither OMB nor USDA is staffed to accomplish this role, and neither provides much real coordination (6, pp. 27-29). Furthermore, the fragmentation within the executive branch's departments and agencies, each looking for political support and receiving instructions from a different set of congressional committees, virtually guarantees that real coordination will not occur.

Intergovernmental Division of Responsibility. The American intergovernmental system is, in effect, a system of separated institutions sharing powers. Though for the most part legally distinct from one another, the Federal, State, and local levels of government nonetheless share responsibility for rural development policies and programs. While the Federal Government has historically taken the most visible lead in rural development and has dominated agricultural policy, State and local governments have long concerned themselves with the economic and social development of their rural areas.

There are few mechanisms for harmonizing policies between levels of government; those that exist are limited in effectiveness. The constitutional separation of powers between the Federal and State levels prevents the Federal Government from dictating broad policies to the States. Informal political mechanisms, such as the disciplined party systems that operate to provide a degree of coordination in some countries, are lacking in the United States. To the extent that there is policy consistency between levels of government, it is obtained either through the sharing of exemplary programs from one State to another or by mandating it as a condition for the receipt of Federal grants-in-aid. For the most part, such mandates have not been concerned with matters of rural policy.

Within States, USDA agencies that administer programs in rural areas have been required since the 1960's to form State-level rural development committees to coordinate USDA programs and relate them to State and local policies. These committees have had little apparent effect on bringing about coordinated rural development efforts on a national, and or even a statewide, scale (6, p. 30). It should therefore not be surprising to find approaches to rural development pulling in many, sometimes contradictory, directions.

Imbalance in Power and Public Sympathy. Although rural issues are as diverse as those facing the American society and economy as a whole, certain viewpoints--chiefly those having to do with the farm sector--have dominated national rural policymaking. This is true both of the organized interests that lobby the Congress and popular conceptions of what constitutes the "rural problem."

By far the most influential groups in shaping agricultural and rural policy at the national level are representatives of the major agricultural commodity producers. Representatives of producers of milk, grains, tobacco, cotton, meat, citrus fruits, sugar, oil seeds, and other farm interests participate actively in the political process and contribute heavily to political campaigns. They lobby intensively when farm legislation is under consideration. While they may not prevail, their interests are always considered (6, p. 17). Their large direct financial stake provides them the impetus to insist that farm policy be considered a major component of rural policy.

In contrast, while numerous organizations are concerned with non-farm rural issues, they chiefly represent local governments in rural areas, whose interests are much more general. Because they have less incentive to influence Federal rural policy, they devote fewer resources to lobbying the Congress. As representatives of governments, neither they nor their members contribute to election campaigns. They devote themselves principally to looking out for the particular interests of their members, focusing especially on a few Federal aid programs, and have not organized themselves well to operate in concert. Their role in influencing the direction of rural policy is therefore small in comparison with the farm lobby.

Popular conceptions of rural issues, as conveyed by the news media, place greatest emphasis on the plight of farmers, principally in the Midwest, and it is clear that a great deal of public sympathy lies with the farmers and their families, and for efforts to help preserve their way of life. Such sympathy is less intense for other categories of rural residents who are similarly situated--unemployed textile workers, businessmen in towns once booming from mining activity, southern blacks living in poverty.

This imbalance in the power position and perceived worthiness of various groups leads the policy formulation process to give unbalanced attention to rural problems. Although it may be good politics to respond directly to these perceptions and expressed interests, it may not lead to effective policies. Farm policy provides an illustration. Because farm interests dominate the rural policymaking process, programs to sustain farm family incomes operate mainly through intervention in agricultural markets. However, the growing tendency for farm families' income to come from off-farm sources makes farm programs increasingly ineffective in enhancing farm family incomes, let alone those of other rural workers. But without a shift in the way political interests are structured and represented, it is difficult for the policymaking process itself to recast the rural income problem in broader terms than is presently the case.

Difficulty of Targeting Programs. Inevitably, policies that attempt to direct resources toward tightly defined objectives must confront the fact that in the American political system, it has been historically difficult, and frequently impossible, to achieve effective program targeting. Despite numerous formula grants that allocate aid to eligible areas with mathematical precision, there is little evidence that the resulting distribution of funds is more than modestly directed toward presumed targets; often, the reverse has been true (4). The tendency for decisionmakers to view program outputs as "political benefits" tends to transform programs that begin as serious attempts at targeting into benefits that must be shared equally. Certainly this was the experience with many Economic Development Administration programs. While the process of targeting is sometimes elaborate, producing grant formulas that have all the appearances of scientific precision, formula-writing has become a game in which the choice of formulas often depends more on political than programmatic considerations. In the final analysis, effective targeting is not a question of science but of political will, a will often lacking in a political system that has often emphasized benefits for individual constituencies at the expense of broader national concerns.

Conclusions

The term "policy" has an appealing and deceptively authoritative ring. We picture policy as a framework of compelling and systematic logic to guide public actions toward ultimately effective ends. "Policies" are precise. They are definite. They are important and deal with important subjects. The attention they command is deserved. It is good to have a policy.

Their symbolic importance blinds us to limitations of the policy concept. It is easy to forget that in a democratic system approaches to public issues must be developed out of conflict and compromise between competing interests and ideas. Our belief that policies are consistent strategies causes us to overlook the fact that we often choose to submerge rather than resolve conflicts by accommodating diverse and even contradictory views into our national actions. Americans are a pragmatic people who distrust government and resist being governed. But "governing is choosing," as Churchill said. In the end, we get what we, as a people, ask for: our policymakers respond to our many demands.

If our willingness to avoid difficult choices by adopting inconsistent programs is a failure to govern according to a grand design, that is one thing. But it is another matter to mask the pragmatic approach as a policy, and an even more serious matter to confuse ourselves by failing to clarify our objectives and the likely effects of our programs. Failing to think clearly about what we want to achieve and how we might best accomplish it leads to programs that are muddled, occasionally contradictory, and potentially self-defeating.

As a practical matter, the U.S. is not likely to have a single, clear, and coherent rural policy. Even without such a policy, even with many political compromises, much can be accomplished. With or without a policy, however, decisionmakers need to look closely at rural conditions, decide how the problems they wish to address should be formulated, and what strategies and tools they wish to apply if their actions are to be effective and not empty gestures.

References

1. Drabenstott, Mark, Mark Henry, and Lynn Gibson. "The Rural Economic Policy Choice," *Economic Review*, vol. 72, no. 1, Jan. 1987, pp. 41-58.

2. Fox, William F. "Can There Be Size Economies in Providing Government Services?" *Rural Development Perspectives*, RDP-4, Sept. 1981, pp. 33-36.

3. Fox, William F. *Size Economies in Local Government Services: A Review*, RDRR-22. Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, Aug. 1980.

4. Fox, William F., and J. Norman Reid. "Targeting Federal Development Assistance to Local Governments in Rural Areas, 1972 to 1983," *Publius*, forthcoming in 1987.

5. Honadle, Beth Walter. *Public Administration in Rural Areas and Small Jurisdictions: A Guide to the Literature*. Garland Publishing Co., Inc., New York, 1983.

6. Long, Richard W., J. Norman Reid, and Kenneth L. Deavers. *Rural Policy Formulation in the United States*, ERS Staff Report No. AGES870203. Economic Research Service, U.S. Department of Agriculture, Apr. 1987.

7. Reid, J. Norman. "Building Capacity in Rural Places: Local Views on Needs," in *Perspectives on Management Capacity-Building*, edited by Beth Walter Honadle and Arnold M. Howitt, State University of New York Press, Albany, 1986, pp. 66-83.

8. Reid, J. Norman, Thomas F. Stinson, Patrick J. Sullivan, Leon B. Perkinson, MonaCheri P. Clarke, and Eleanor Whitehead. *Availability of Selected Public Facilities in Rural Communities: Preliminary Estimates*, ERS Staff Report No. AGES840113. Economic Research Service, U.S. Department of Agriculture, Mar. 1984.

CHAPTER 1

THE IMPACT OF MACROECONOMIC POLICIES ON RURAL EMPLOYMENT

James R. Malley and Thomas F. Hady

Abstract. Rural areas have a major stake in the nation's economic health. Employment by industry varies among regions and areas (metro/nonmetro) in the United States, and as a result the employment impacts of monetary and fiscal policy can vary. Nonmetro employment reacts slightly more than does metro employment when monetary and fiscal policies change. These reactions are especially strong in the nonmetro Northeast and South, whereas both metro and nonmetro areas in the West are affected less than the U.S. average. Policymakers need to consider whether regional employment changes are the result of cyclical changes or structural before adopting specific policies.

The relationship between the health of the general economy and that of the rural economy has been important for many years. William Jennings Bryan's "Cross of Gold" speech in 1896, for example, reflected the desire of farmers and others to expand the money supply as a way to raise prices of their products (8). 1/ Events in the middle part of this century have made relationships between the rural and national economies more complicated and at the same time, closer. Although farming used to dominate rural America, a recent study found that more nonmetro counties were predominantly manufacturing than agricultural (1). Deregulation of financial markets has opened up many new options for rural savings and removed many of the old barriers which, it was argued, partly insulated rural financial markets from Wall Street. Flexible exchange rates and the growth of other countries' economies have opened the U.S. economy to world competition and have particularly affected agriculture and basic manufacturing (3).

The authors are economists in the Agriculture and Rural Economy Division, ERS.

1/ Underscored numbers in parentheses refer to sources cited in the References section at the end of the chapter.

Many studies have looked at the factors affecting movement of industry among regions, or its location in nonmetro areas. Some of those studies are reviewed elsewhere in this volume. Few, however, have studied the relationships between the national economy and regional metro and nonmetro economies. This study concentrates on that relationship. Specifically, it analyzes the connections between changes in economic activity, as measured by U.S. Gross National Product (GNP) and employment in metro and nonmetro areas in the United States and in four regions of the Nation.

Technically, "rural" and "nonmetro" have different meanings. Throughout this paper, however, they are used interchangeably to refer to counties that were outside metropolitan statistical areas, using the 1983 delineation. Regional delineations follow standard Census practice. 2/

Regional and area (metro/nonmetro) employment data are from series maintained by the Bureau of Labor Statistics and the Bureau of Economic Analysis. After studying changes in the various industries over 1969-84, we concluded that four industry categories were appropriate for this analysis: manufacturing and construction, government, services, and primary goods (which includes farming, forestry, fisheries, and mining). County data were summed to provide annual totals for metro and nonmetro areas in each region, 1969-1984. 3/ Except for agriculture, however, these data do not include sole proprietors. To maintain comparability with national-level data used to estimate relationships between GNP and industry employment, the number of sole proprietors of nonagricultural businesses each year in each industrial group was allocated to areas (metro/nonmetro) and regions according to their share of national wage and salary employment in the industry.

Distribution of Industry Varies Regionally

Macroeconomic events can affect regions differently because of regional variations in industrial composition, and it is these

---

2/ The Northeast includes ME, NH, VT, MA, RI, CT, NY, NJ, and PA; the Midwest includes OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, and KS. The South includes DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, and TX; and the West, MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA, AK, and HI.

3/ Manufacturing includes SIC (Standard Industrial Classification Codes) 20 through 39; construction, SIC 15 through 17; government, SIC 91 through 99; services, SIC 40 through 49, SIC 50, SIC 52 through 59, SIC 60 through 67, SIC 70 through 89, and other services; and primary goods includes farm workers, farm proprietors and SIC 07 through SIC 14.

25

differences which drive our analysis. Hence, it is helpful to review the trends in U.S. industry employment. Perhaps the single most obvious trend since 1969 is the growth of service industries, continuing a trend that has persisted since 1850 (7). Services accounted for 48 percent of U.S. employment in 1969, and 57.2 percent in 1984. They are significantly more important in metro areas than in nonmetro areas (fig. 1; see figures at end of chapter). Services accounted for a larger part of total employment in metro areas but were also a powerful source of growth in nonmetro counties, accounting for more than 3.5 million new jobs during 1969-84.

Primary goods employment is much more important in nonmetro areas, particularly outside the Northeast. Except in the Northeast, nonmetro employment in primary goods has declined slowly in relative importance since 1969. The most rapid decline was in the nonmetro South, where primary goods employment fell from 21.7 percent of employment (including proprietors) in 1969 to 16.3 percent in 1984. Although primary goods employment fell in the nonmetro South, overall employment in the primary producing industries grew by 130,000 between 1969 and 1984.

Manufacturing and construction employment changes are more complicated. Manufacturing and construction are proportionally somewhat more important in the nonmetro Northeast and South, and in metro areas of the Midwest and Northeast. Nationally, they have declined from employing 27.9 percent of all workers in 1969 to 21.6 percent in 1984. Despite that relative decline, however, the manufacturing and construction group was second among the four industry groups as a source of employment growth in rural areas, accounting for 705,000 new jobs from 1969-84. Further, the decline in relative importance of manufacturing and construction has been uneven among regions. The nonmetro South experienced little change in the importance of this group; manufacturing and construction employment began at 27 percent of the total in 1969 and ended at 26.3 percent in 1984. In an expanding job market, that meant the nonmetro South gained more than 550,000 jobs in manufacturing and construction during the 15-year period. Manufacturing and construction employment declined in the Northeast and metro Midwest during 1969-84. In fact, the declines in those two regions were large enough that total manufacturing and construction employment in the metro United States declined by 5,000 jobs over the 15-year period. In the aggregate, these changes resulted in a slow migration of industry from the Northeast and Midwest to the metro South and West (table 1; see tables at end of chapter). Superimposed on that shift was a small net shift from nonmetro to metro areas. The nonmetro proportion of total U.S. employment rose from 20.8 percent in 1969 to 21.3 percent in 1976, but fell to 20 percent by 1984.

While the industrial employment shares in table 1 have changed slowly over time, they show very little variation from year to year, particularly when compared with the variation in total industry employment. Since our analysis is primarily concerned with the medium term, that stability made it possible for us to hold the area and regional industry shares constant at their 1984 values. In the model developed for this analysis, we examine how changes in GNP affect total industry employment, which in turn is translated to area and regional employment effects by the 1984 industrial shares (fig. 2). At the same time, we have not explicitly accounted for longer-term trends in area and regional industrial employment shares. The model analyzes the impacts of particular fiscal and monetary policies on area and regional employment; it does not allow for long-term changes in industrial employment composition.

Determining Industrial Employment

Area and regional employment in any one industry is modeled as a function of total industry employment and the 1984 area and regional industry shares of total industry employment. While this approach assumes that area and regional shares of employment in each industry remain fixed, it does not constrain area-by-region shares of total, regional, metro, or nonmetro employment. For example, this approach allows a nonmetro area to gain or lose employment relative to metro areas in the same or other regions. However, relative employment shifts among areas and regions depend on changes in total industry employment rather than changes specific to an area or region. According to this approach, the uniqueness of any particular area and region is determined by the composition of local industries as defined by the 1984 industrial shares. For instance, total nonmetro employment in the Northeast (TnmNE) is derived as: $TnmNE = c1(TI1) + c2(TI2) + c3(TI3) + c4(TI4)$, where c1 through c4 are the 1984 employment shares of area by region industry employment to total industry employment; $c1 = nmNEI1/TI1$, $c2=nmNEI2/TI2$, $c3=nmNEI3/TI3$ and $c4=nmNEI4/TI4$. TI1 through TI4 refer to total industry employment in manufacturing and construction, services, primary goods and government, respectively; nmNEI1 through nmNEI4 refer to nonmetro Northeast industry employment in manufacturing and construction, services, primary goods, and government, respectively.

The next stage of model development specifies the relationships between total industry employment, industry output, and GNP. This is achieved by estimating industry employment demand equations (2, 5).

In this type of equation, industry employment demand is driven by industry output which is, in turn, determined by national demand (real GNP). 4/

When demand for a firm's product (output) changes, the firm can respond by changing its use of existing factors of production (capital and labor), by changing the quantity employed of either factor, or both. Labor supply, capital supply, and capital demand are not treated explicitly in our analysis. Our model also assumes that quantity effects of an increase in the demand for labor dominate price effects. For example, an increase in demand for an industry's output will be reflected mostly by an increase in employment rather than in the real wage. If higher real wage effects dominated, less employment would be created than implied by our assumption. The relative insensitivity of the price of labor to changes in demand is due to the assumption that labor is underemployed, which we think is consistent with the current economic situation at the aggregate level.

Table 2 describes the relationship between a 1 percent change (increase or decrease) in industry output and the resulting change in industry employment. For example, a 1 percent increase in manufacturing and construction output initially leads to a 0.7 percent increase and eventually to a 1.5 percent increase in employment. Manufacturing and construction experience larger percentage employment change in both the short run and long run than do any other industries. Primary goods production, on the other hand, has the lowest relative percentage employment change. 5/

Since we are primarily interested in the behavior of industry employment demand, we adopted a pragmatic simplification by not explicitly estimating industry output equations. In the simple model used here, an industry output equation would merely act as a link equation with little behavioral significance, and as such, would likely increase forecast error in the employment demand equations. Therefore, we tie employment demand directly to real GNP (table 3).

4/ A forthcoming staff paper by the authors will provide the technical details of functional forms, lag specifications, estimation methods, and statistical results.

5/ The level of labor productivity in these equations is defined as the ratio of employment to output. The lower the ratio, the more productive the industry. Over the the historical sample period (1969-84), primary producers were the most productive, followed by manufacturing and construction, services, and government. The sensitivity estimates in table 2 measure the percentage change or growth in productivity.

The data in table 3 are the results of two implicit effects: the industry output to employment sensitivities (table 2) and the industry output to GNP sensitivities. The estimates show how a 1 percent change in GNP directly affects the growth of industry employment. Alternatively, the sensitivities can be viewed as measures of the percentage change in the ratio of industry employment to GNP. For example, a 1 percent decrease in GNP leads to a 0.5 percent decrease in the demand for service employment in the short run and a 1.3 percent decrease in the long run.

The relative differences in sensitivities between the industries are essentially the same as in table 2, except they are now exaggerated, reflecting each industry's cyclical sensitivity to changes in GNP. Manufacturing and construction are the most sensitive to changes in GNP and primary industries the least. A probable explanation of the negative sensitivity (-0.17) on primary goods production is that "labor hoarding" is occurring in the short run. This argument suggests that employers in these industries will not change the quantity employed until they are more certain that the change in demand (GNP) will be sustained. In the case of primary goods producers, for example, the negative growth in the ratio of employment to GNP would result from employment remaining the same (labor hoarding) and GNP increasing.

Macroeconomic Policy Effects

The final information that our employment-demand model requires is the bridge between fiscal policy, monetary policy, and GNP. These linkages provide the capacity to postulate alternative fiscal and monetary policies and determine their employment demand implications at the area and regional level.

Several different tools were used. First, we used results from the U.S. portion of the Federal Reserve Board's multicountry model (MCM) to provide the quantitative relationship between GNP changes and fiscal and monetary policy changes (4, 6). Second, using the MCM's results in this manner required a macroeconomic baseline forecast for the key variables. These variables included real total government purchases of goods and services, nominal short-term interest rate (3-month Treasury bill rate), inflation rate (percentage change in the implicit GNP deflator), and real GNP. We adopted a methodologically neutral position and forecasted these variables at their long run trend growth rates. This approach is also useful when interpreting the results, since it allows the effects of alternative policies to be more easily disentangled from baseline assumptions. The distinctive feature of the baseline forecast is that the economy exhibits no marked cyclical variation and is best characterized as growing smoothly and continuously at its long run steady state.

The way in which the MCM model operates can best be understood by running separate fiscal and monetary policy scenarios. The policy assumptions used to drive the GNP forecasts are merely illustrative and do not represent a set of most likely scenarios. These simulations, however, will allow us to ascertain the area and regional differential employment impacts if these policies are pursued. These employment impacts are conditional on differing industrial employment composition and differing employment-to-GNP sensitivities. The forecasted path of real GNP through 1994 is expressed in terms of percentage deviations from its baseline path (fig. 3).

Changing Fiscal Policy

The fiscal policy shock consists of a sustained increase through 1994 in real total government spending on goods and services, equal to 1 percent of baseline GNP. The result of the fiscal shock is an initial 2 percent increase in GNP over its base level, after which "crowding out" of the fiscal effect occurs. This pattern continues throughout the forecast period and by 1994, real GNP is 0.5 percent lower than its base level. This "crowding out" is due to the negative effects on GNP of higher interest rates, prices, and exchange rates. In the MCM, the increase in government purchases leads directly to increases in real income and spending. As domestic spending increases, the demand for money increases. Given the assumption of a fixed growth path for the nominal money supply, interest rates then rise. The rise in interest rates leads to lower domestic consumption and investment spending and an appreciated trade-weighted value of the dollar. The higher-valued dollar in turn leads to a decline in the U.S. current account position as imports become cheaper and exports more expensive. The tendency to import more is further exaggerated by the initial higher real income in the United States. Despite appreciation in the value of the dollar, which keeps domestic prices down, inflation increases as real output rises closer to full capacity.

Changing Monetary Policy

The monetary policy shock consists of a 100-basis-points increase in the 3-month Treasury bill rate sustained throughout the simulation period. In MCM, monetary policy works through the main channels of the effects of interest rates on consumption, investment, and the exchange rate. Real long-term interest rates affect consumption and the cost of capital, which in turn affect investment in producers' structures, durable equipment, and residential investment. Relative differences in nominal short-term rates between the United States and its major trading partners affect the exchange rate. The results of the sustained increase in interest rates are lower income and prices and an increase in the value of the dollar during the simulation. The trade balance also worsens throughout the simulation as a result of the higher valued dollar, but the decline is not nearly as sharp as in the fiscal case, due to lower real incomes in the monetary simulation. GNP is 0.5 percent lower than its base value in 1987 and reaches its lowest percentage difference from base of 1.5 percent by 1991.

Results

Areas and regions vary considerably in the average percentage difference of employment from base levels and the cumulative number of jobs gained or lost as a result of the macroeconomic policy changes (table 4). Again, this variation among areas and regions is driven by the differences in industrial mix as defined by the 1984 industrial shares and the estimated industrial employment to GNP sensitivities. An area and region's average percentage employment difference from base measures its sensitivity to changes in macroeconomic policy. A higher average percentage difference represents a greater relative effect on area and regional employment. The cumulative change in jobs measures the total number of jobs gained or lost over the simulation period, 1987-94.

The expansionary fiscal shock reflects a sustained increase in real government purchases equal to 1 percent of baseline GNP. This shock is equivalent to an average annual increase of approximately $43 billion over base spending. As a result of increased government purchases, the nonmetro South experiences the highest annual average percentage employment gain from base, with 0.57 percent. The nonmetro West, on the other hand, is the least sensitive to fiscal policy changes with an average annual percentage increase from base of 0.39 percent. These changes translate into cumulative job gains of approximately 526,000 and 116,000 in the nonmetro South and West, respectively. Other regions more sensitive than the U.S. average to changes in fiscal policy include the nonmetro South, Northeast, and Midwest, and the metro Northeast and Midwest.

The relative area and region employment demand sensitivities in the contractionary monetary shock are essentially the same as in the fiscal shock. The nonmetro South now loses the most in terms of annual average percentage difference from base at -0.86 percent, and the nonmetro West loses the least at -0.60 percent. In terms of cumulative employment changes, the nonmetro South loses 858,000 jobs and the nonmetro West, 198,000 jobs over the simulation period. Regions which are more sensitive than the U.S. average in this shock include the nonmetro South and Northeast, and the metro Northeast and Midwest.

For the United States as a whole, nonmetro areas are slightly more affected by fiscal and monetary shocks than are metro areas. The difference is small, however, and is not uniform across the country. In the West and the Midwest, metro areas actually experience the bigger gains and losses from changes in monetary and fiscal policy. A reversal in the direction of the shocks will yield the same results but with the opposite sign. For example, if monetary policy was loosened by a sustained 100-basis-points drop in the 3 month Treasury bill rate, then the nonmetro South would be the biggest percentage winner at 0.86 percent, and the nonmetro Midwest the smallest percentage winner at 0.60 percent. A comparison of the employment results across expansionary policy shocks suggests relatively larger gains in both average percentage and cumulative job gains for the monetary expansion. Relative to base levels, for example, the expansionary monetary policy leads to an extra 332,000 jobs in the nonmetro South and 82,000 in the nonmetro West.

A very important aspect of the results is the dynamic pattern of the employment demand sensitivities to changes in fiscal and monetary policy. Averaging the percentage employment differences from baseline over the simulation period obscures the yearly pattern of each area's and region's percentage employment gains and losses. For instance, in the fiscal shock, although the nonmetro West has the lowest average employment sensitivity, it is the only nonmetro area, relative to the U.S. total, which becomes progressively more sensitive throughout the simulation (fig. 4). On the other hand, the nonmetro South, with the highest average employment change from base, becomes progressively less sensitive than the U.S. total and actually falls below the nonmetro West by 1994. The nonmetro South, Northeast, and Midwest are also consistently more sensitive to changes in GNP than their metro counterparts in the same region throughout most of the simulation period. The nonmetro West's employment sensitivities do not surpass the metro West's until 1992.

Conclusions and Policy Implications

The most important lesson to emerge from this analysis is that rural areas have a major stake in the Nation's general economic health. Employment in nonmetro areas is affected slightly more than employment in metro areas by changes in monetary and fiscal policy. Jobs in the nonmetro Northeast and South, in particular, tend to rise and fall faster than overall employment. Several conclusions emerge from these observations. First, policymakers should carefully distinguish between structural problems in rural areas and cyclical problems reflecting the state of the general economy. If regional unemployment results from countercyclical macroeconomic policy, a massive job retraining program may be counterproductive in terms of macroeconomic policy. On the other hand, if the impacts of macroeconomic policy are falling unevenly on specific geographic areas or economic sectors, policymakers may want to consider the arguments for tax and subsidy arrangements to alleviate the inequity. Conversely, rapid growth in nonmetro areas may not be cause for jubilation; the growth may simply reflect general economic trends, and may likely reverse itself with the next period of monetary and fiscal tightness.

Second, these results suggest that discussions of the appropriate mix of fiscal and monetary policies for a particular situation need to consider regional impacts. While national fiscal and monetary policies are not the appropriate tools to use for rural development policy, decisions on both national economic policy and regional and rural/urban economic policy ought to be made with knowledge of their cross-effects. While our results demonstrate the usefulness of modeling macroeconomic-regional impacts, they must be expanded and refined before they can provide reliable guides to policy. Nonetheless they clearly demonstrate that the problems of rural America must be analyzed and attacked in the context of the national economy.

References

1. Bender, L.D., and others. *The Diverse Social and Economic Structure of Nonmetropolitan America,* RDRR-49. Economic Research Service, U.S. Department of Agriculture. Sept. 1985.

2. Brechling, F.P.R. "The Relationship Between Output and Employment in British Manufacturing Industries." *Review of Economic Studies*, vol. 32, July 1965, pp. 187-216.

3. Drabenstott M., and others. "The Rural Economic Policy Choice." *Economic Review*, Federal Reserve Bank of Kansas City, Jan. 1987, pp. 41-58.

4. Edison, H.J., and others. *The Structure and Properties of the FRB Multicountry Model Part I: Model Description and Simulation Results.* International Finance Discussion Papers, No. 293, Federal Reserve Board, Oct. 1986.

5. Fair, R.C. *The Short-Run Demand For Workers and Hours*. Amsterdam, North-Holland, 1969.

6. Stevens, G.V.G., and others. *The U.S. Economy in an Interdependent World, A Multicountry Model*. Board of Governors of the Federal Reserve System, Washington, DC, 1984.

7. Urquhart, M. "The Employment Shift to Services: Where Did It Come From?" *Monthly Labor Review*, April 1984, pp. 15-22.

8. Wright, C.W. *Economic History of the United States*. New York, McGraw-Hill, 1949, p. 669.

Table 1--Share of metro/nonmetro employment by industry and region

Area and region	Services		Manufacturing & construction		Government		Primary goods	
	1969	1984	1969	1984	1969	1984	1969	1984
				Percent				
Northeast:								
Nonmetro	1.8	1.7	2.5	2.3	2.3	2.0	2.6	2.9
Metro	24.7	21.5	25.5	20.7	18.5	16.7	4.3	5.1
Midwest:								
Nonmetro	5.4	4.9	6.1	6.2	7.1	6.5	26.5	24.8
Metro	21.4	19.1	25.7	20.7	16.0	15.4	8.5	8.7
South:								
Nonmetro	6.3	6.1	8.7	10.6	8.7	9.4	30.9	27.0
Metro	22.8	26.0	18.4	22.3	26.5	28.3	12.0	12.5
West:								
Nonmetro	2.1	2.4	1.4	1.9	3.5	3.9	7.2	8.0
Metro	15.5	18.1	11.6	15.4	17.5	17.8	7.9	11.0
United States:								
Nonmetro	15.6	15.2	18.7	20.9	21.5	21.8	67.2	62.7
Metro	84.4	84.8	81.3	79.1	78.5	78.2	32.8	37.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 2--Percentage change in industry employment from a 1 percent change in industry output

Industry	Initial	Longrun
	Percent	
Manufacturing and construction	0.70	1.50
Services	.60	1.10
Government	.35	.76
Primary goods	.19	.30

Table 3--Percentage change in industry employment
from a 1 percent change in GNP

Industry	Initial	Longrun
	Percent	
Manufacturing and construction	1.45	2.27
Services	.50	1.34
Government	.13	.33
Primary goods	-.17	.31

Table 4--Area and regional employment sensitivities to employment changes from macroeconomic shocks, 1987-94

Area and region	Expansionary fiscal shock		Contractionary monetary shock	
	Average change	Cumulative change	Average change	Cumulative change
	Percent	Thousands	Percent	Thousands
Northeast:				
Nonmetro	0.54	112	-0.83	- 189
Metro	.49	1,036	-.78	-1,807
Midwest:				
Nonmetro	.49	339	-.75	- 553
Metro	.52	1,016	-.81	-1,754
South:				
Nonmetro	.57	526	-.86	- 858
Metro	.44	1,168	-.71	-2,052
West:				
Nonmetro	.39	116	-.60	- 198
Metro	.44	810	-.71	-1,420
Total:				
Nonmetro	.51	1,093	-.78	-1,798
Metro	.47	4,030	-.75	-7,033
United States	.48	5,123	-.76	-8,831

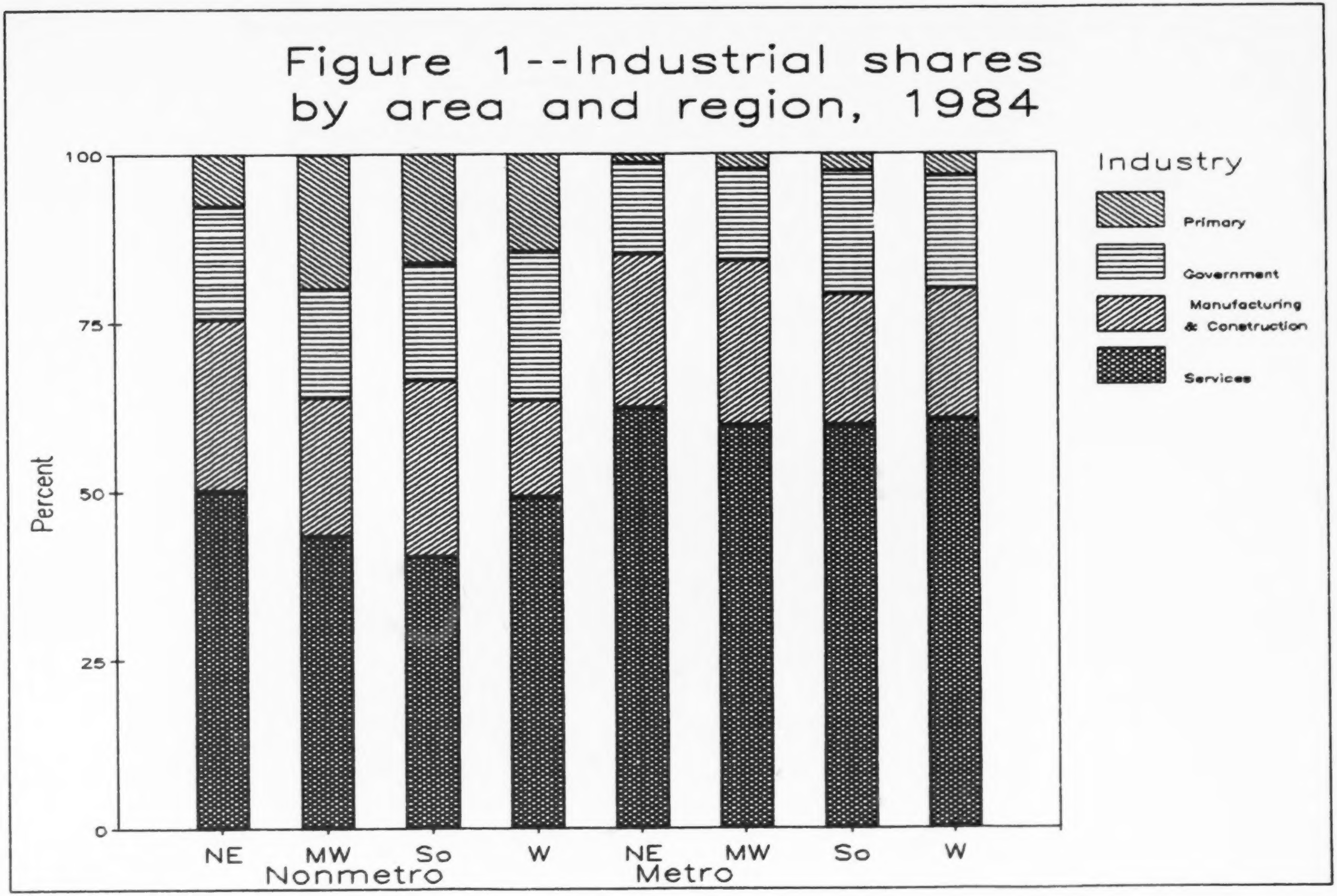


Figure 1--Industrial shares by area and region, 1984

Figure 2--Linkages between macroeconomic policy and regional employment change

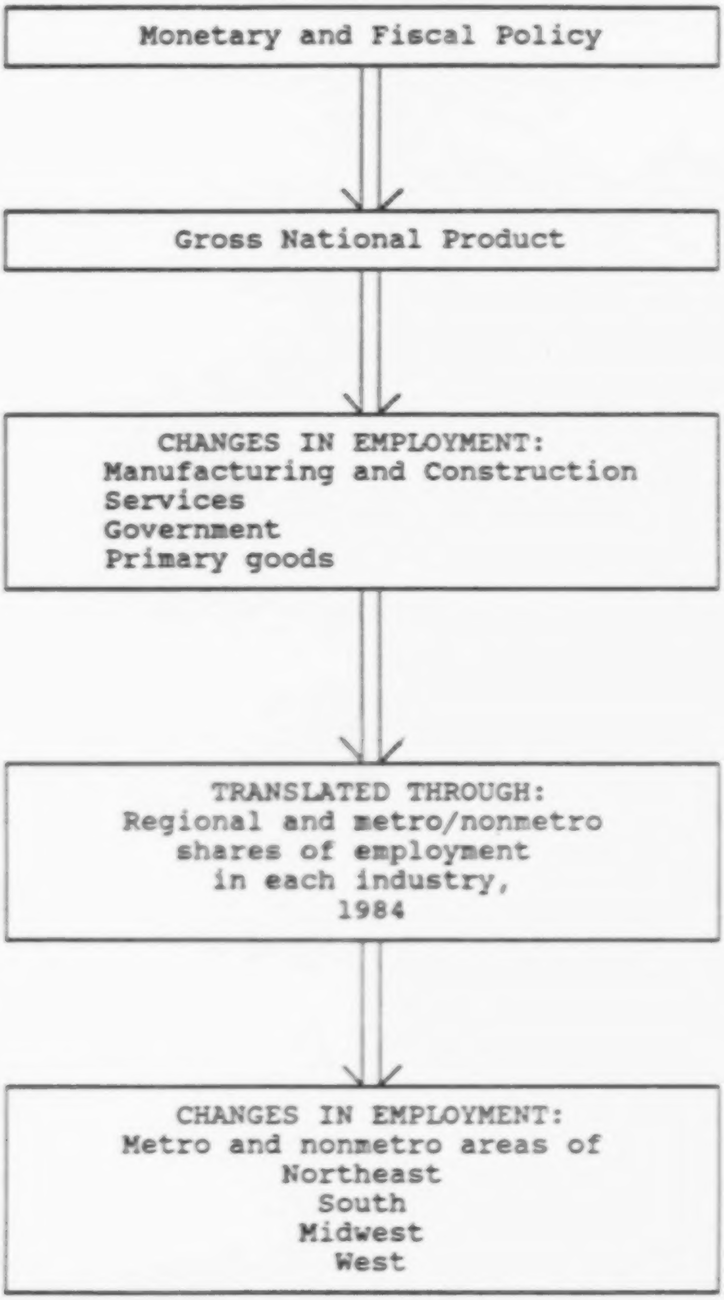

Monetary and Fiscal Policy
Gross National Product
CHANGES IN EMPLOYMENT:
Manufacturing and Construction
Services
Government
Primary goods
TRANSLATED THROUGH:
Regional and metro/nonmetro shares of employment in each industry, 1984
CHANGES IN EMPLOYMENT:
Metro and nonmetro areas of
Northeast
South
Midwest
West

Figure 3. GNP paths given fiscal and monetary policy changes

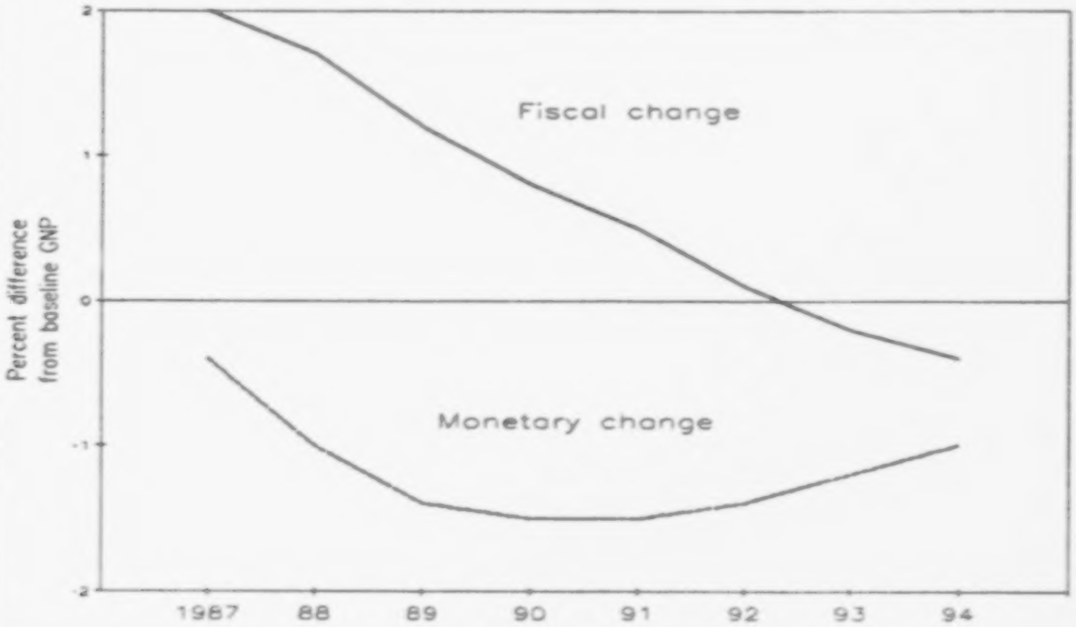
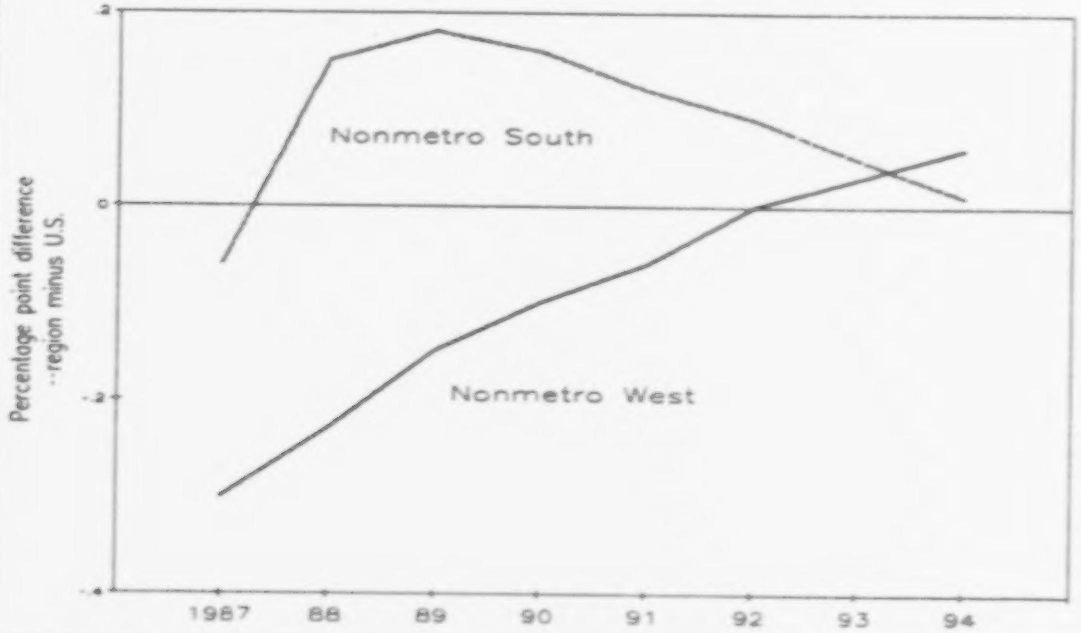


Figure 4. Diffences in employment sensitivities



CHAPTER 11

UNANTICIPATED CONSEQUENCES OF GOVERNMENT PROGRAMS ON RURAL ECONOMIC DEVELOPMENT

Ted K. Bradshaw and Edward J. Blakely

Abstract. Rural areas experience development from three types of government programs--those that provide benefits directly to individuals, those that help build rural organizations, and those that alter the context for rural business and other government programs. The unanticipated benefit of these programs is greatest for rural areas when the programs are not oriented toward the development of areas, when they build local organizational capacity, and when they coordinate with other developmental initiatives. Rural areas remain dependent on many programs that provide a social service network in order to overcome the underdevelopment persisting in rural America.

Government programs have both direct and indirect impacts on rural development. While it has been difficult to create explicit Federal rural development policies that revitalize small towns and countryside, other Federal programs with neither a developmental objective nor a rural focus are increasingly recognized for their unanticipated developmental role (17) 1/. In fact, several programs that had no specific intent to influence or direct development are now recognized for having a more profound impact on rural areas over the last five decades than some explicitly developmental programs.

As the Federal Government increased all forms of assistance to individuals and institutions, and as regulatory patterns have changed, opportunity for economic development in many areas of the country has been affected. Just as highway policies led to decentralization or suburbanization of inner cities, social welfare, hospital construction, and housing policies have altered the face of rural America. These policies, which were intended to rearrange urban-rural differences from the outset, have been supplemented from the New Deal to the present by other Federal policies and programs intended to increase the Federal Government's leverage at the individual and local levels that have created a new spatial safety net and led to the rural population turnaround of the 1960's and 1970's (4). While the rural turnaround has abated, the policies and programs that created the underpinning for it remain crucial to the vitality of rural areas. This paper explores the contours of Federal policies that are not directly developmental in form but have significant developmental impacts for rural communities.

Ted Bradshaw is Research Sociologist, Institute of Governmental Studies, and Edward Blakely is Professor and Chair, Department of City and Regional Planning, University of California-Berkeley.

1/ Underscored numbers in parentheses refer to sources listed in the References section at the end of the chapter.

27

Federal programs that indirectly affect rural development fall into one of three categories:

- --Services or resources provided directly to individuals who need them regardless of where they live (as in the case of Social Security);
- --Funding, technical assistance, and other resources provided to local public and private organizations that help build community organizational infrastructure (as in the case of funds that help construct hospitals);
- --Actions that alter the context in which other programs, or the economy as a whole, operate (such as regulation/deregulation of public service industries).

Federal policies affect urban and rural areas in different ways. Urban areas in general are less dependent on the direct actions of the Federal Government. On the other hand, some rural places are nearly totally dependent on a single government facility or program such as a Forest Service office or the programs of the Bureau of Indian Affairs. Similarly, government activities such as dam and water project construction or military installations alter the resource base of rural areas, both financially and intellectually, in terms of the capacity of the human skills of the people who live and work in rural communities. Thus, Federal initiatives have substantial long-term impacts on rural capacity and opportunity because they alter the social and economic resource base within a local community. Ongoing cycles of policy development and change tend to rapidly disturb but slowly build capacity in rural areas.

Consequences of Federal Programs and Expenditures for Development

Federal policies, programs, and expenditures have a redistributive effect on regional development apart from their specific intended consequences for specific groups or individuals. As a result, the Federal Government's role in rural areas is pervasive and essential, though unevenly distributed. In fact, a vast number of rural places are singularly dependent on employment which is derived indirectly from Federal Government transfer payments or programs. This situation creates both a potential for development and a liability since many of these communities lack diversity and are vulnerable to program changes.

Federal expenditures have stimulated rural population growth. For several decades, places with growing Federal programs have experienced population growth while declining Federal expenditures have been associated with stable or declining population. Data show that county seats and places with large numbers of government employees are important nodes of growth, though these places grow and decline as State and local expenditures change along with Federal funding. Communities with a college have typically grown while those with a military base showed losses during the 1970's (1).

Throughout the Nation, 315 nonmetro counties derive 25 percent or more of their total labor and proprietor income from the payrolls of Federal, State, and local governments. Relative to other counties, these counties with a high level of dependence on government employment tend to be somewhat more urbanized, have higher rates of population increase, have lower average incomes, and support a low-wage mix of economic activities. They are exceptionally dependent on policy decisions affecting the amount and type of Federal Government spending and the types of persons employed by various programs. Since they derive somewhat lower total tax revenues and benefits, and since rural communities supply few items needed by government facilities and offices, the local economic multiplier from government programs is lower than might be expected (2). Nonetheless, one in six nonmetro counties is dominated by government-derived income, and a significant part of this starts with Federal funds or is shaped by Federal program guidelines.

Federal expenditures return a good deal of tax money to local economies. A large proportion (though not all) of these expenditures can be tracked to the county in which the spending occurs. Of the $713.7 billion in Federal expenditures that can be traced to recipient county areas, about $139.6 billion in 1985 expenditures, or 19.6 percent, went to individuals and programs in nonmetro counties. Nationwide, all Federal expenditures totaled $3,022 per capita in 1985. However, rural areas received only $2,478 as opposed to $3,192 per capita in urban areas. This disparity of 30 percent less for rural areas was concentrated largely in defense expenditures (table 1--see table at end of chapter). The nondefense part of the Federal budget was fairly evenly distributed to metro and nonmetro counties. Nonmetro counties received considerably more funding in the agriculture and natural resources area, and small amounts more in human resources and income security functions (18).

Federal programs can be redirected to rural areas, creating economic activities where they are located. For example, Federal regional development policies have been successful when there is general agreement that a particular region needs assistance and when Federal programs are expanding. When programs are not growing, however, it is unrealistic to assume that many dollars can be redirected from urban to rural areas. Although government programs and facilities can increase local dependence and vulnerability to policy changes, effective integrated rural development strategies can mitigate many potential problems. Systematic Federal reallocations of expenditures to the most depressed rural areas remain an effective tool to stimulate lagging economies.

Development Consequences Defined and Classified

Developmental programs are a subset of the total government effort in rural communities. While all government programs produce (or reduce) change, a developmental program implies a desirable social consequence for individuals and communities. Development maximizes the potential of local people rather than simply being an end in itself for the benefit of outsiders; developmental programs deliberately build on local resources and goals rather than import external ones.

Beneficial rural development has a particular objective and process: to create lasting improvement in the well-being of rural people. Programs that are not developmental are ends in themselves, or they impose a direction of change on an area from the outside without improving the potentials of existing individuals and organizations.

Many classifications of developmental programs have been suggested in the literature. Development programs can be classified by their goals (11) or by the types of processes by which change is facilitated (9). Classifications by functional areas and resources mobilized to do development have also been utilized (19).

We examine development from the perspective of intervention policy--the theories and practices that alter existing conditions in a predetermined direction. The major policy choices are whether assistance focuses on 1) meeting the direct needs of individuals, 2) increasing the capacity and efficiency of institutions such as businesses, schools, or government agencies that provide services, or 3) creating linkages among organizations and improving the overall context in which they operate.

These program types are interrelated with cumulative impacts. Individual level policy objectives can be reached by targeting individuals or indirectly by creating programs that enhance the local organizational base. Capacity development efforts structure linkage and planning among organizations to improve the ability of organizations to support individual needs. The policy attraction of programs targeted to specific individual needs is that the program demonstrably reaches the intended population. But as a program intervention is further removed from an individual recipient, the policy attraction is that a structural change will alter the individual's capacity to identify or develop local resources to meet one's needs rather than create greater dependence on external aid.

Over time, Federal programs have broadened from individual level programs to capacity building because specific individual assistance has failed to solve the structural conditions that cause underdevelopment. As Bradshaw and Blakely showed, early rural development programs were individual level technology transfers (5). Organizational development programs followed--farmer, cooperatives, community associations, and economic development groups. The newest type of rural development programs are integrated efforts that build capacity, provide linkages, and coordinate diverse activities. The new emphasis on the larger organizational context, however, does not reduce the importance of ongoing programs. In fact, the successful development of these programs is the foundation on which an integrated set of programs could be built.

Impact of Individual Assistance Programs

Programs that deliver services directly to individuals are based on the premise that the Federal Government has a responsibility to provide basic economic security, and to guarantee equal access or opportunity for all individuals. Individual level service delivery programs in rural areas vary according to the type of service provided and the way it is managed. Two different types of individual service-oriented programs are examined; 1) personal entitlement programs (like Social Security) that provide benefits independent of geographic location and provide the opportunity for individuals to follow their personal choices and live in rural communities; and 2) individual rights (such as civil rights) and special benefits programs that improve access to established social systems.

Social Security and Individual Entitlements

Retirees are a major resource for economic development in rural areas. Attracting retirees to a rural community has a number of advantages: their pensions and Social Security income are often derived from earnings elsewhere, and the elderly tend to spend more of their income in local communities rather than regional shopping centers. Retirement communities in the California foothills, northern Wisconsin and Michigan, the Ozarks, and throughout Florida and Arizona, for example, have grown largely due to the lifestyle amenities provided to retirees with Social Security income. In one northern California community the population doubled in about 10 years, and over half the recent migrants were retirees with social security incomes (6).

Social Security income is attractive to rural development because it is locationally independent. Beneficiaries can use their payments anywhere and for any purpose. Since rural areas are generally attractive to retirees because of the lower cost of housing and the small town atmosphere, retirees transfer their benefits there.

Hirschl and Summers calculated some measures of the impact of Social Security on rural development. Using county data, job growth in nonbasic (not agriculture, manufacturing, or government) industries was studied in light of changes in the amount of Social Security payments. With a sample of 170 counties that were nonmetro in 1950, change in the county employment level in nonbasic industries was shown to be more dependent on Social Security than on manufacturing job growth (12). The findings of this study showed that many more jobs were created by each dollar of Social Security transfer payments received by persons in the county than by each dollar of manufacturing wages. Other possible explanatory variables were not statistically significant in terms of nonbasic jobs--neither agricultural income, intergovernmental transfers, distance to the nearest SMSA nor linkage to the interstate highway system produced clear and significant changes in the level of nonbasic jobs created.

Social Security is a powerful stimulus to rural development for three reasons. First, benefits have tended to flow from urban to rural areas in recent years, with people moving into rural areas because of the attractive living conditions and lower cost. Retirees are able to follow the patterns suggested by Zuiches who has documented that Americans want to live in rural areas, but are often unable to do so because of limited job opportunities. When individuals receiving Social Security payments move into an area, the benefit is also multiplied because many retirees also have pensions, investments, equity from the sale of an urban home, and other passive income. These individuals are usually not poor, and in fact may belong to a group with a large discretionary income.

Second, Social Security stimulates development because retirement communities become centers for other development including hospitals and other sources of employment for persons in the labor force. Elderly care is one of the fastest growing industries, and rural areas compete well for the economic development associated with it.

Third, retirees, using Social Security income as a base, also initiate economic development in their communities because the retiree brings a resource of considerable skills and talents for local economic development. From the community perspective, retirees contribute to the human resource base. This retiree skill base is so important that small businesses, government offices, and new industries are tapping the retirees to contribute to the labor force.

Social Security as well as other individually based transfer payment or entitlement programs provide a concentrated economic base or platform for development. The consistent and persistent economic force provided by transfer payments shelters the retail trade and service industries against the fluctuations of natural resource industry cycles.

The attraction of these entitlement programs is that they are spatially neutral, that is, they influence the economic or social options of people irrespective of location. In effect, however, their impacts are scarcely independent from geographic location since the value of these resources is influenced by the local conditions in which they are used. For example, a Social Security check will generally go farther in rural areas than urban communities. Consequently, programs meant for individuals convey a new mobility for the recipient which can be a substantial rural economic and social development vehicle. The implication of this is that spatially neutral programs and policies can significantly benefit rural development.

Programs Guaranteeing Equal Access and Opportunity

The Civil Rights movement of the 1960's and subsequent efforts to ensure equal treatment for all disadvantaged groups have provided a rural development instrument that has not been well studied. In general, the premise of the programs is that a spatially neutral program benefits individuals, but in fact these programs require a delivery mechanism largely missing from rural areas. Because of the small scale of rural communities, offices that deliver services are not found in rural areas, and thus the delivery of benefits lags.

Individual opportunity is not an esoteric and nonconsequential benefit to rural development. The lack of equal access to jobs, housing, and other civic benefits retard the direct and indirect development of any community. Historic discrimination against blacks and Hispanics retarded economic development in the South and other areas of the Nation. The release of human capital of these groups has not only allowed them into the work force but provided new avenues for these minority groups to start, control, or manage businesses and industries. This increasing economic capacity continues to be a major source of innovation and stimulation for rural areas. As racial discrimination abates, investor confidence increases with more economic activity. Plants getting governmental contracts need to show that they are equal opportunity employers, and community action facilitates individual firm compliance. Firms sensitive to discriminatory activities shy away from areas with long histories of racial animosity. Most importantly, releasing the full opportunities of all people in an area greatly expands the local human potential and provides greater opportunities for everyone.

Several programs supporting equal access that thus support rural development are:

Fair Housing and Equal Credit Opportunity (U.S. Department of Justice)
Desegregation of Public Education
Client Assistance for Handicapped Individuals (U.S. Department of Education)
Equal Opportunity in Housing (U.S. Department of Housing and Urban Development)
Women's Special Employment Assistance (U.S. Department of Labor)
Veterans' Reemployment Rights (U.S. Department of Labor)

These programs provide services to individuals who have been treated unfairly or who have special needs. The programs aim to enforce laws that guarantee education, employment, access, and other rights, as well as to provide special services such as books for the blind. These services are generally available to any person or group, and as such there is no particular rural benefit or disadvantage. However, in most cases they require an office or local program through which to deliver a service, in some cases taking on legal actions initiated by an individual. In the case of school desegregation, an issue of considerable importance to many rural counties in the South, the Civil Rights Division of the U.S. Department of Justice has been involved in cases desegregating both universities and primary school districts.

In contrast to Social Security which was spatially neutral, rural areas have lagged behind urban areas in implementing of equal rights and human resource opportunity programs. Policies to remedy this include better enforcement of State guidelines to ensure uniform compliance and efficient use of rural funds in all States. Because rights programs are small budget items compared to Social Security, for example, offices are not located in all rural communities, and special rural efforts are needed to meet the needs of people who cannot come into a main office. Innovative service delivery programs have been utilized in several places where similar programs share staff or where services are delivered by nonprofit organizations in the area. With effective monitoring, these programs can be combined with other service delivery efforts in rural areas. However, these innovative service delivery systems remain experimental and have limited applicability in some of the most needy rural regions. A better understanding of how to deliver rural services is necessary.

Impact of Organizational Development and Support

The second policy perspective by which the economic and social well-being of people in both urban and rural areas can be improved is to build and support problem solving organizations. Individual transfers and available human rights provide only part of the solution to rural problems. These resources need to be used more effectively in terms of building an indigenous economic resource in the local community. However, these organizational structures are difficult to establish and sustain, especially in rural communities. Some organizations provide a coordination and referral service. Others provide primary services themselves, ranging from financial assistance or information on community improvement to hospitals and elderly housing. In order to do this, considerable effort has been made on organizational development and capacity building.

Many Federal Government programs since the War on Poverty have been founded on the premise that the government is making a social investment through providing local organizational capacity. One of the most important investments is in terms of medical care. The government assists needy individuals directly with Medicare and related health assistance plans. An indirect form of assistance is the enormous resources transferred to individuals via both capital and technical assistance to hospitals. The Hill-Burton Act helped build hundreds of rural hospitals and is examined as a study of how direct investment pays off (though rural hospitals now face a different problem relating to Medicare payments). A related effort is housing construction for the elderly and handicapped.

Rural Hospital Construction--Direct Institution Investment

The Federal Government assists construction of rural hospitals, universities, and other facilities to serve local residents and provide services that would not be available because they are not economical or feasible for the private sector to build without assistance.

The per capita cost of many public facilities in rural areas is much higher than in urban centers. Because of the small population base and the large distances between people, rural facilities are generally small, limited in economies of scale, and meet different needs than their urban counterparts.

The Hill-Burton Hospital Survey and Construction Act improved the supply and quality of general U.S. hospital beds. The Act also aimed to ensure a more equitable distribution of physicians throughout the country. During the years this program was funded, it was responsible for building hospitals throughout rural America, though any relation to the supply of physicians is uncertain. A recent study by Clark and others has shown that the Hill-Burton program had a significant redistributive impact on the supply of hospital beds from the most urbanized States to the most rural, but that a redistribution of physicians did not follow as a consequence (10).

The program has now been terminated at a time when many of the smallest rural hospitals continue to have problems, especially involving upgrading and modernizing their facilities. Programs of hospital assistance have been shown to have been of value.

Today the overall distribution of health funding is not fully redistributed. Reid and Whitehead show that in 1980 the U.S. Department of Health and Human Services spent 16.1 percent of its total health services budget in nonmetro counties, which had 28 percent of the population (18, p. 42). The same data show that only 5.9 percent of Department of Housing and Urban Development programs for hospitals and other health facilities was spent in nonmetro counties. Recent expenditures do not address the significant shortfall of rural communities.

Today, rural hospitals face another important organizational challenge. Due to the small scale of many rural hospitals, their specialized facilities are not efficiently and fully used, driving their costs above the maximum paid by Medicare. Since rural hospitals depend more on Medicare payments than do urban hospitals, their financial problems seem especially acute and require creative financial and management solutions. Staff levels at hospitals required to cover possible emergencies are often excessive for routine service, and facilities such as delivery rooms are required to be used for births only, even though most routine births take place in an alternative birthing room even in rural communities. Adaptability in the regulatory structure and the payment schedules used by Medicare could be useful to rural hospital administration.

Hospitals are not merely a health resource for rural areas. Every hospital provides a substantial knowledge infrastructure that directly affects rural communities. The doctors, nurses, accountants, and others who staff a rural hospital play an important part in their community. Often the hospital payroll is the largest single source of employment in small communities. Hospital employees take the leadership in community and civic affairs, assist in developing new ventures and opportunities for the community, and contribute disproportionately to the arts and cultural enrichment of the area. In essence these intellectual resources are a significant economic development base that can be further exploited for the benefit of the community. Some rural hospital administrations are starting to appreciate this fact, looking to better overall economic development as a strategy to improve their client base, and are successfully identifying roles that utilize their employee skills.

Direct Loans for Elderly Housing

Another illustration of an organizational delivery system is the Elderly or Handicapped Housing Program in the Department of Housing and Urban Development that provides direct loans to local organizations to build housing for the elderly and handicapped. Nationally, some 176,400 units have been constructed through 1984 with nearly $5.9 billion in loans. These units are found in both rural and urban counties, though in 1980 about 24 percent of the funds were spent in nonmetro counties, slightly less than their 28 percent share of the total population. These programs have provided a significant resource for rural elderly. Moreover, the program is targeted to areas with high proportions of elderly who fall more than 50 percent below the median family income of the area; these individuals are also able to receive direct assistance in the form of housing subsidy payments under Section 8 of the Housing Assistance Payments Program (7).

Rural areas have difficulty using many of the facilities construction programs because of the lack of administrative capacity. In a study of the ability of rural areas to apply for community development block grants, Blakely and Zone showed that rural communities lacked the professional expertise needed to assemble competitive grant applications (3).

A second issue involves rural areas' difficulty in using the facility construction or other infusion of capital into a rural institution to develop broader community goals. Too often these programs remain isolated from development objectives. In several cases, however, they are the center piece of area development. In a small Georgia community, an aggressive mayor received a great deal of national attention by getting several facilities grants and organizing an entire community development program around the resources that these grants provided. In another example, Soldiers Grove, WI, used Federal assistance after a flood (which had been a recurring event every few years) to rebuild the entire community on higher ground. These funds, as well as additional assistance from the U.S. Department of Energy and other sources enabled Soldiers Grove to become a modern "solar" community and to realize untapped potential. The potential for this type of program that meets general developmental needs in rural communities is substantial, but in most cases the developmental leadership does not come from the people involved.

The Impact of Context and Coordinating Programs

The third type of program with developmental consequences in rural areas includes those providing linkage among organizations and general way to make individual organizations and programs more effective. Included are programs to regulate public or quasi-public services. The best example of this type of effort is Federal programs that alter private financial markets by guaranteeing and subsidizing loans and mortgages. Rural America is a paradox in this regard. Rural institutions, including farm credit and a host of natural resource subsidies, create a highly regulated institutional setting for the Nation's strongest individualists.

A second illustration of the role of the Federal Government in structuring rural markets is the recent change in the level of regulation in selected industries. With deregulation, rural communities gained certain flexibility and lost certain types of urban services.

Rural Housing Market Programs

Rural housing requires a different capital base than urban housing. In most States, the bulk of the mobile homes are in rural areas; thus, programs guaranteeing their financing are especially important. The Federal insurance program for mobile homes insures lenders against loss on loans for improperly built and placed mobile homes. In 1984, this program insured 23,000 units, bringing its cumulative total to nearly 260,000 units with a cumulative value of almost $4 billion. This program mitigates the conservative tendency of rural banks not to loan money for mobile homes, a major housing alternative for rural residents. The importance of this program is seen by its dominant use in rural areas--46 percent of the 1980 Federal funds were used in nonmetro areas.

To better serve rural areas, HUD sets aside portions of its total housing assistance for rural communities, and has special programs for housing in outlying areas. Mortgage assistance for homes in outlying areas only covers 79,000 home mortgages, but this program provides a useful resource for rural homeowners who cannot find assistance elsewhere. But these programs fail to resolve the major problem of rural housing finance: total housing effort of HUD is strongly biased toward urban areas. Whereas 28 percent of the population live in nonmetro counties, only 14 percent of HUD funds for housing go to these counties.

To some extent, this difference is made up by housing programs in the Farmers Home Administration. The most significant Farmers Home program is targeted to rural families. The program provides direct loans and loan guarantees to families that would not qualify under conventional lending practices. These loans are used to create farm communities, not merely housing units. Water and sewer programs are frequently developed with the Farmers Home Loan program, which helps build or rebuild a rural area into a more modern, liveable place.

Self-help housing is a companion effort in the community building arena. Federal Farmers Home loan and other programs have created an unusually responsive tool for rural development via self-help housing.

Housing illustrates the plethora of government initiatives that build local institutional potential or create a new policy framework for rural institutions by removing impediments in the existing organizational infrastructure. In a detailed review of the housing problems faced by the rural elderly, Nathanson showed that financing was restricted by limited financial capacity of rural banks, lack of sponsorship for public housing construction, and limited governmental capacity to process applications (14). In other words, the rural institutional structure was not capable of passing on the benefits that rural residents needed and wanted. Therefore, the development of Federal tools to overcome the weak institutional base of rural areas is significant for [illegible] development.

While declining levels of resources have been devoted to existing programs, they remain important. Rural housing and related programs improve rural quality of life, and existing support services encourage experimentation to meet rural needs. Changes in the definition of appropriate patterns of rural electrification, water and sewer system design (e.g., modular units), and administrative oversight have all significantly affected development.

Deregulation and Regulatory Impact

The major industrial deregulations implemented in the 1980's have altered the delivery of services to rural areas. This is an important issue since the connections between rural areas and urban centers depend on reliable and low-cost transportation and communications. In the past this was guaranteed by a series of cross subsidies that provided rural areas service at less than full cost or via direct government subsidy.

The removal of these barriers is still new. From early evidence, however, most rural areas remain essentially in the same competitive position as before deregulation. While we do not have all the needed data, a review of the overall impact of deregulation on rural areas suggests that deregulation has not been the major crisis for rural communities that some feared, though structured responses are often necessary to overcome remaining rural disadvantages.

Airlines. Airlines have been required to serve small and rural airports, even though the volume of customers was not sufficient to justify the service. In some of the least profitable cases, airlines serving rural airports were subsidized by the Federal Government. With deregulation, the subsidies were reduced, small carriers were sought to replace major airlines serving small communities, and many rural areas became self-sufficient. The results of the series of programs that deregulated rural airports have generally been favorable, according to a recent study by Murphy and Watkins (13). They suggest that airline deregulation has had a positive benefit on all cities, but especially on major urban hubs. Flight frequency has increased, prices have dropped in real dollars adjusted for inflation, and traffic for all markets has increased. Rural routes, are served by about 10 percent more flights in 1986 than in 1978, but the aircraft are more often small commuter airplanes rather than jets and have smaller seating capacity.

The new airlines serving rural areas are more often commuter airlines rather than the majors, and their level of connecting service with the majors has often been lacking. Real prices for rural air travel have dropped, but not by as much as fares at the larger airport hubs where increased competition has provided a variety of discount options. In terms of total dollars per mile received from all types of tickets, fares from major hub to major hub have decreased by 17.4 percent since 1979; fares involving nonhub airports have decreased between 6 to 9 percent, depending on the route. In sum, airlines deregulation has restructured airline service to rural communities, but they remain served (and slightly disadvantaged).

Trucking. Trucking deregulation has followed a similar pattern. With the reduction of requirements for trucking companies to serve rural communities, many major companies pulled out. But according to a study by Pustay, trucking service to rural communities has improved since deregulation in 1980, and fears of rural abandonment have been set aside (16). Pustay's data, drawn from a sample of communities in eight States, showed that these communities are now served by more trucking companies than before. In Wisconsin, for example, the number of interstate carriers per rural community before deregulation averaged 2.3; this increased to 7.0 in 1984. The number in Maine increased from 5.4 to 6.2 during the same period. Intrastate trucking also increased service to rural communities, but not by as much. Most of the communities in the study were served by one or two intrastate carriers in 1984, although some States that did not reform their trucking regulations showed actual declines in intrastate service. While reports suggest that shippers and trucking companies are satisfied with service in rural areas, data on prices paid are not available.

Banking. The effect of banking deregulation remains unclear since the entire financial industry remains in a cloud. Our information to date is contradictory. At the macro-level more capital appears freed up in the interstate banking systems to flow to rural areas. However, at the micro-level farmers are now in competition with more lucrative, faster return investments for financing. Moreover, just as inner city branches disappear, the full-service elements of rural banks disappear and move to urban centers.

These changes have varied from State to State, depending in part on the State definition of the structure of the banking industry and in part on the speed with which the rural banks made changes. The removal of rural banks has clearly reduced rural resident convenience, but perhaps has a greater impact in terms of reducing the availability of bankers skilled in helping businesses package loans, prepare business plan documentation, and the like. On the other hand, where economic development services are available, the consolidated banking system provides greater access to less common financial instruments, and greater levels of service.

Bus and Rail Services. The major area in which service declined markedly, leaving an unfilled void, is bus service to small rural communities. Major interstate bus lines have largely abandoned the smallest communities, bypassing them or limiting service to one or two busses a day. Up to now few commercial carriers have entered the general scheduled bus transportation market, though a number of specialized carriers now provide service to urban hub airports, for example, or to bring tourists and recreation participants in to particular events. The intercity transportation gap has had to be filled by rural public transportation services, but these services often do not exist, or funds for their activities would have to be diverted from other programs (including road repair) that have greater public use and support (8, 15).

Telephone and Telecommunications. Telephone deregulation remains an area of confusion and contention. The cost of telephone lines per customer in rural areas is much higher than in urban areas, and until now the rural customer has been buffered from paying the full costs of service. It is not known how telephone deregulation will affect these rural customers, but there remains a great deal of pressure to greatly increase rural charges, if not for continuing service, at least for hookups.

Policy Implications of Regulations

Despite the absence of clear evidence that rural areas have been disadvantaged by deregulation, the issue is nonetheless an appropriate subject for concern. The effect of regulatory patterns on the availability of rural services needs continued tracking. However, because there is no systematic rural data collection on policy impacts, they are largely a matter for conjecture and it is too early to draw definitive conclusions. It should be noted, though, that even a slight alteration in the quality of these services can have consequences for rural areas that are magnified in relation to their effects in urban areas. Because the regulatory climate has made up a part of the platform for development that supported the rural population turnaround of the 1970's, it is important to weigh carefully the effects of that removing it might have on rural business conditions.

Implications for Rural Development Policy

As agricultural and natural resource-supporting policies decline in importance in rural communities, the relative impact of other Federal policies on rural areas will increase. The Federal Government has provided both a safety net and a development platform for rural areas. The safety net has been formed by spatially neutral programs that assist individuals. The development platform has been created by the array of programs and policies designed to create greater institutional presence or capacity in rural areas, ranging from hospitals to regulation of individual industries. This review of the range of policies assistance to shaping rural communities suggests that the rural environment poses both challenges and opportunities for using these programs to achieve effective development. This raises a number of critical issues.

Declining Support for Planning, Technical Assistance and Capacity Building

The overall trend in governmental funding is away from long-term commitments to building an internal or institutional resource base for rural areas. Rural communities find that while coordination, planning, and institutional development have a particularly important contribution to make, they are more costly and difficult in rural than in urban areas. Because their costs are higher per capita for these activities, small communities usually have fewer coordinating mechanisms in place and rely on informal cooperation among officials who know each other. The absence of an adequate institutional capacity makes it more difficult for rural communities to determine their own goals and objectives in face of outside pressures, and they are often unable to convert opportunities into explicit development plans.

Need for Greater Federal Coordination and Administration

While rural areas have received many benefits from government programs, even more developmental payoff could have been obtained. Hospitals can be centers for rural economic development or used for expanding programs of post secondary education. Similarly, better use of housing and technical assistance programs could lead to community development that increases the administrative and long-term developmental potential of many communities. A more enlightened program administration that recognizes these multiple uses of government programs could, through appropriate coordination, help achieve them.

Nondevelopment Programs as Instruments for Development

It is often hard to identify the developmental impacts of nondevelopmental programs, and these impacts should not be taken for granted. Local policymakers and officials need to be attentive to ways to increase the developmental impact of various programs, and to increase the long-term benefits of these programs for their communities.

Better Monitoring Capacity

The effect of nondevelopmental programs in rural areas has largely escaped identification and measurement. In terms of program justifications, the developmental consequences of these programs are often not included, such as for some expenditures for capital facilities such as parks or hospitals. Cost benefit analyses do not take these factors into account.

References

1. Beale, Calvin L. "People on the Land," Chapter 3 in Thomas R. Ford (ed), *Rural USA: Persistence and Change*. Ames: Iowa State University University Press, 1978.

2. Bender, Lloyd D., Bernal Green, Thomas F. Hady, and others. *The Diverse Social and Economic Structure of Nonmetropolitan America*, RDRR-49. Economic Research Service, U.S. Department of Agriculture, Sept. 1985.

3. Blakely, Edward J., and Martin Zone. *Small Cities and Community Development Act of 1974*. Davis, CA, Institute of govrenmental Affairs, Univrsity of California, Mar. 1976.

4. Bradshaw, Ted K., and Edward J. Blakely. "The Changing Nature of Rural America," in William F. Brown and Don F. Hadwiger, eds., *Rural Policy Problems, Changing Dimensions*. Lexington, MA, Lexington Books, 1982.

5. ______________. *Rural Communities in Advanced Industrial Society*. New York, Praeger, 1979.

6. ______________. *Resources of Recent Migrants to Rural Areas for Economic Development*. University of California Extension, Research Monograph, 1981.

7. *Catalog of Federal Domestic Assistance, 1985*. U.S. General Services Administration, 1985.

8. Cervero, Robert. "Abandonment of the Rural Poor," *ITS Review*, (Berkeley, CA) vol. 6, no. 4, Aug. 1983.

9. Christensen, James, and Jerry Robinson. *Community Development in America*. Ames: Iowa State University Press, 1980.

10. Clark. L.J., M.J. Field, T.L. Koonts, and V.L. Koontz. "The Impact of Hill-Burton: An Analysis of Hospital Bed and Physician Distribution in the United States, 1950-1970," *Medical Care*, vol. 18, May 1980, pp. 532-547.

11. Gilford, Dorothy M., Glenn L. Nelson, and Linda Ingram, eds. *Rural America in Passage; Statistics for Policy*. Washington, DC, National Academy Press, 1981.

12. Hirschl, Thomas A., and Gene F. Summers. "Cash Transfers and the Export Base of Small Communities," *Rural Sociology*, vol 47, no. 2, 1982, pp. 295-316.

13. Murphy, Patrick V., and Wayne S. Watkins. "Rural America Benefits from Airline Deregulation, But Less than Urban America," *Rural Development Perspectives*, Oct. 1986, pp. 2-7.

14. Nathanson, Iric. *Housing Needs of the Rural Elderly and the Handicapped*. U.S. Department of Housing and Urban Development, Office of Policy Development, Nov. 1980.

15. Oster, Clinton V., Jr., and C. Kurt Zorn. *The Impacts of Regulatory Reform on Intercity Bus Service*, DOT/OST/P-34/85/017. U.S. Department of Transportation, University Research Program, Sept. 1984.

16. Pustay, Michael W. "Regulatory Reform of Interstate Trucking Brings Improved Service to Rural Communities," *Rural Development Perspectives*, Oct. 1986, pp. 8-11.

17. Rasmussen, Wayne D. "90 Years of Rural Development Programs, *Rural Development Perspectives*. Oct. 1985, pp. 2-9.

18. Reid, J. Norman, and Eleanor Whitehead. *Federal Funds in 1980: Geographic Distribution and Recent Trends*. ERS Staff Report No. AGES820927. Economic Research Service, U.S. Department of Agriculture, Nov. 1982.

19. Rondinelli, Dennis A., and Kenneth Ruddle. *Urbanization and Rural Development*. New York, Praeger, 1978.

Table 1--Per capita Federal expenditures in metro and nonmetro counties, fiscal year 1985

Function	All Counties	Metro Counties	Nonmetro Counties
All Functions	$3,022	$3,192	$2,478
Agriculture & Natural Resources	49	21	137
Community Resources	116	117	113
Defense & Space	842	1,011	303
Human Resources	27	26	31
Income Security	1,545	1,516	1,637
National Functions	444	502	258

Note: The data in this table refer only to the 93 percent of Federal expenditures that could be traced to county levels.

Federal obligations for other programs such as direct or guaranteed loans, and interest on the national debt, are excluded.

Detail may not add to totals due to rounding.

Source: Government and Development Policy Section, Economic Research Service, U.S. Department of Agriculture.

CHAPTER 12

AGRICULTURAL PROGRAMS: THEIR CONTRIBUTION TO RURAL DEVELOPMENT AND ECONOMIC WELL-BEING

David H. Harrington

Abstract. Agricultural commodity programs are neither well-targeted to farms with financial stress nor to farm families with low incomes. However, changing these programs can have severe impacts on farm families and rural economies because they constitute very high proportions of both the gross and net cash receipts for the commodities to which they apply. The magnitude and incidence of farm program expenditures, the linkages between the farm sector and the rest of the economy, and the degree of dependence of local economies on the farm sector are analyzed to assess the effects of changes in agricultural sector programs on rural economic well-being.

Agricultural sector policies, largely farm commodity programs, have evolved over at least 50 years with the goal of improving the economic well-being of farm families. Concerns about recent growth of farm program expenditures and continuing farm financial stress have led to questions about the effectiveness of such programs in improving the well-being of farm families and, more generally, their effectiveness in addressing rural development and rural well-being objectives.

The four chapters following this chapter address the effectiveness of alternative, non-agricultural programs in attaining rural development and well-being objectives; thus, this chapter will concentrate on agricultural sector policies. The effectiveness of these policies in improving rural economic well-being depends upon several factors which form the focus of the discussion:

- The magnitude of income transfers to farmers, including the distribution of benefits by type and size of farm.
- The linkages between the farm sector and the "upstream" and "downstream" sectors serving the farm sector.
- The degree of dependence of the local economy on the farm sector and agriculturally linked sectors.

David Harrington is an agricultural economist with the Agriculture and Rural Economy Division, ERS.

A fourth section of this chapter describes effects of other nonsupport agricultural policies, such as research, technological development, and extension programs, on the farm sector and the general economy. A final section describes implications of program changes on rural economies.

Agricultural Sector Programs

Agricultural commodity programs were first enacted at the beginning of the Great Depression. Their goals were to improve the economic well-being of farm families, who then made up 25 percent of the national population. By improving the economic well-being of farm families, all rural residents and a large share of the total population could be made better off. Commodity price support programs were thought most effective because they raised farm prices and incomes through sales of farm products and were seen as ways of assisting the market to work better. Farm production of supported commodities was widely dispersed throughout the country, and most farms were family-sized units with few very large farms. Thus, the commodity programs were initially very effective in raising farm and rural incomes.

The programs evolved new provisions to deal with problems that surfaced over the years in the commodity support programs. As profitability of supported crops increased, farmers produced more than the market would absorb at the supported prices and costly commodity surpluses developed. Government costs of purchasing, storing, and disposing of surplus commodities increased and supply management provisions, usually in the form of mandatory acreage or marketing quotas, were used to control government costs. Later direct payments to farmers were used to allow commodity prices to fall to levels where they could compete in international trade, while keeping farm prices at target levels. At this time, voluntary acreage reduction programs replaced mandatory controls. Still later, the size of direct payments to some large producers became a concern and payment limitations were instituted. Most recently, marketing loans, payment-in-kind (PIK), and payments in generic commodity certificates have been instituted in attempts to further control production and marketing while controlling government costs.

During the half century of farm programs, the farm population has declined to less than 5 percent of the national population. Employment in production agriculture on farms and in the agricultural service sector has declined nationally to 4 percent, and is only 13 percent in nonmetropolitan areas. Farms have become more heterogeneous, with large numbers of small, part-time farms that produce a small proportion of total output, and a small but growing number of very large farms that account for very high proportions of farm production.

Types of Programs

The effectiveness of farm programs in serving rural development and economic well-being objectives has declined. Moreover, as farms and farm programs evolved, the farm programs themselves have become extremely complex (the Food Security Act of 1985 weighed over 13 pounds in the draft approved by the

Conference Committee). The extent of this complexity can be better appreciated from the following description of types of programs and commodities to which they apply.

Traditional Commodity Programs. The traditional and familiar commodity price support programs support prices directly through loan and storage programs operated by the Commodity Credit Corporation (CCC). These programs set floor prices by lending producers a specified "loan rate" per bushel, pound, or hundredweight and accepting the product in repayment if market prices should fall below the loan rate. The CCC then holds the product off the market for future sale or donation. Traditional commodity programs also support the effective price received by farmers (the target price) by making direct deficiency payments to producers if the season average market price of a commodity falls short of the target price. A further provision of commodity programs is called the marketing loan, in which the producer is lent an amount equal to the loan rate, but has to repay only an amount equal to the market price. This provides effective price support to the producer without raising market prices to consumers or foreign competitors. Marketing loans are currently used for only rice and cotton. PIK provisions and payments in generic commodity certificates (each allowing the recipient to claim commodities owned or under loan by the CCC as part of their government payments) have recently been used to limit accumulation of surplus CCC stocks.

Commodities covered by the traditional programs include feed grains, wheat, rice, cotton, sugar, dairy products, and miscellaneous products such as tobacco, peanuts, honey, and wool (table 1--see tables at end of chapter). Direct support of market prices through purchases of product are used for dairy products and honey. Production and marketing quotas are used for tobacco and peanuts.

Supply Management. Supply management provisions are used with each of the commodity programs to limit government costs or to increase prices by controlling market supplies. Supply management programs are usually acreage reduction or paid land diversion programs which limit the acreage that can be planted to the program crops. Other forms of supply management include production or marketing quotas. Voluntary supply management programs are generally used to limit government costs: a producer who does not comply with the supply management provisions is ineligible to receive direct payments or loans. Mandatory production or marketing quotas are usually used where the objective is to raise market prices; they apply to all producers of the commodity. Production control programs such as the dairy herd buy out program are also used to limit supplies and government costs.

Conservation and Cross Compliance. The Food Security Act of 1985 includes provisions for paying farmers to place up to 45 million acres of highly erodible land into a conservation reserve for 10 years. Since most of this land is currently used to produce program commodities, the reserve helps control production of surplus crops. Other conservation provisions for limiting production of program commodities include the "sodbuster" and "swampbuster" provisions making farmers ineligible for program benefits on all their operations if they have taken land out of sod or reclaimed wetlands for cropland in 1986 or after. The justification for all of these program provisions is conservation of land and water resources, but they contribute significantly to the supply control objectives of commodity programs.

Export Enhancement and Import Controls. Almost all domestic support and supply control programs need import control provisions to keep imported commodities from substituting for domestically produced commodities. Such substitutions can increase government costs as more domestic production must be purchased by government. Domestically produced commodities such as dairy products, grains, sugar, and beef are subject to import restrictions or quotas. Import quotas on sugar raise raw sugar prices by nearly 75 percent, until recent years the largest increase in producer prices for any U. S. farm commodity. Import restrictions raise consumer prices and lower government program costs. But, they invite similar restrictions by importing countries. In a similar manner, export enhancement programs such as P.L. 480 (food aid programs, which also have a humanitarian component), export PIK programs, and special credit programs attempt to increase export demand for U.S. commodities in order to raise producer prices or limit government costs. These programs also invite retaliation by competing exporting countries.

Orderly Marketing. Orderly marketing is a term used for a collection of product market stabilization programs such as marketing orders and classified pricing programs. Some of these marketing orders manage supplies coming to market throughout the season, and direct some product to export, storage, or processing in order to raise and stabilize market prices. Others use classified pricing to increase farm revenue by charging higher prices for supplies going to premium uses and lower prices for the balance of the product going to lower quality uses. Classified pricing in dairy products is implemented by higher prices for milk for fluid uses and lower prices for milk for manufacturing uses, such as butter, cheese, and ice cream. Marketing orders are generally used for perishable agricultural commodities such as fruits, vegetables, and dairy products. They stabilize, and may raise, producer incomes. Their effects on consumers are to stabilize prices, increase the availability of consumer products in off-seasons and in processed forms, and perhaps increase the cost of some products.

Financial Programs. Agricultural financial programs (1) provide subsidized credit to farm operators who have been refused commercial credit, (2) maintain preferential status for the borrower-owned Farm Credit System (which lowers the cost of providing credit to farmers), and (3) provide Federal crop insurance, disaster payments, and emergency lending. These programs increase farm ownership capital and operating capital of the sector and lessen the financial risks of farming. Income stabilization funds are not currently used in the United States, but are used by some competing countries. The Canadian Western Grains Stabilization Act is one example. It collects annual premiums and pays indemnities if the annual aggregate revenue from the seven grains to which it applies falls below a threshold level.

Magnitudes of Programs

Outlays to farmers from these programs are shown in tables 2 and 3. Direct payments, net CCC loans, dairy product support purchases, and conservation and miscellaneous programs are included in total annual government program outlays. These outlays have risen since 1981. In 1985 and 1986, outlays to farmers under these programs were a record $21.5 billion, up from $6.8 billion in 1981. Forecasts for 1987 are for further increases in direct commodity payments to $13.8 billion, but declining CCC loans and dairy support purchases. Conservation payments will increase more than fourfold. Total outlays to farmers in 1987 are forecast to decline somewhat to $18.6 billion.

Government outlays to farmers provide the best measure of transfer payments to producers even though CCC loans may be recoverable at future dates if market prices improve and even though the loans may not be precisely accountable to a single year. The best measure of effective support to a particular commodity is the level of government outlays relative to farm cash receipts from marketing of the supported commodity. Rice has recently surpassed sugar to be the most heavily supported commodity with direct government outlays exceeding farm cash receipts since 1985. Payments in 1987 to rice producers are forecast to be 156 percent of cash receipts from rice marketings. Cotton and wheat are the next most subsidized crops, with direct government outlays accounting for over 50 percent of cash receipts. Feed grains also have been subsidized by more than one-third of market receipts since 1985. Dairy support payments peaked at nearly 14 percent of market receipts in 1986 before declining to the 8.1 percent forecast for 1987.

Distribution of Benefits

Farmer benefits of commodity programs are best measured by direct government payments, excluding CCC loans, because CCC loan expenditures are not net additions to the market price that would prevail in their absence. Direct government payments from commodity, conservation, and storage programs are paid on the basis of volume of production of the target commodities. Thus cash grain farms received almost two-thirds of the payments (table 4). Furthermore, farms with sales of over $100,000 per year garner almost 75 percent of all direct payments, with average payments per participating farm that range from $14,000-$49,000. Smaller farms have steadily smaller average payments per farm, declining to $880 for farms with sales of less than $10,000. These payments range from a high of 9.4 percent of gross farm income for cash grain and cotton and tobacco farms to a low of 0.1 percent for poultry farms. Note that dairy price support expenditures and import quota benefits to sugar producers are accounted for as increases in prices received by farmers, rather than direct payments; thus, they are excluded from this analysis.

The initial effect of changing the level of these direct payments can be gauged by observing that direct payments account for over 118 percent of the average net cash operating margins of all farms, and are double to triple the average net cash operating margins of cotton-tobacco farms and miscellaneous crop farms. The net cash operating margins of these farms would be strongly negative, on average, if programs were suspended or severely reduced. Participating commercial size farms, with sales of over $40,000, depend on direct government payments for from 25 to 88 percent of their net cash operating margins, with the largest farms being least dependent on direct government payments.

Farm commodity program expenditures are only coincidentally targeted to farms with financial stress. Only 22 percent of all government commodity support and CCC outlays go to farms that are in the high stress categories of moderate to high debt and negative cash flow (table 5). If farms with high debt and positive cash flow are added in, then 57 percent of expenditures go to stressed or potentially stressed farmers. Farms with current or potential financial stress account for 31 percent of all farms. Average payments per farm are highest for the high debt, positive cash flow farms and smallest for the low debt farms with either positive or negative cash flow. While the distribution of expenditures somewhat reflects the distribution of financial stress, the correlation is not high. More important, the government payments and CCC loans equal or exceed the average net cash operating margin of all farms except those that are least stressed. This implies that suspension or deep cuts in the programs would cause most farms to have negative net cash operating margins. For farm stress classes IV to VI, any cut in commodity program payments would make already negative net cash operating margins much worse.

Agricultural Programs Summary

Farm commodity programs, because they confer benefits based on the volume of production of six major supported commodities, are not well-targeted to either farms with financial stress or farm families with low incomes. However, changing the provisions of these programs can severely affect gross and net farm income because they represent very large transfer payments currently totaling from 43-156 percent of market receipts for the supported commodities. Major reductions in farm commodity support payments could cause many types and sizes of farms to have negative net cash operating margins and would heighten farm financial stress. Farms producing rice would be most severely affected because government outlays for support of these commodities exceed market receipts for them. Wheat and cotton are also heavily supported, with support payments totaling over 50 percent of cash receipts from marketings since 1985.

Sectors Linked to Agriculture

The economic linkages of the agricultural sector also determine how agricultural policy affects the rural economy. The farm sector is linked to the larger economy in a network of input purchases and product sales. Farms buy inputs such as equipment, supplies, feed, seed, fertilizer, labor, and financing from "upstream" sectors. In turn, farms sell products to "downstream" sectors that store, process, transport, manufacture, distribute, retail, consume, or export the products. For some commodities, like cotton, these chains are very long. Cotton may be ginned, spun into yarn, woven into fabric, manufactured into garments, and sold in retail stores. For grain destined for storage or export, however, the chains can be short, ending with transport to a central terminal or port. This section on economic linkages is based on a recent report by Harrington, Schluter, and O'Brien (2). 1/

Agriculture is only one segment, not the driving force, in this network of industries. The agricultural sector can purchase inputs and sell its own products only because there is a demand for the final products to be made from them. The farm sector cannnot unilaterally increase its output and expect to proportionally increase activity in the rest of the economy. This could occur only if agriculture were the only factor limiting the output of the economy. This situation has seldom, if ever, been true; agricultural production has generally been in surplus. Since the excess is normally stored by farmers or the government, farm production can usually be cut, within limits, without proportionally reducing downstream activity.

In addition, the linkages are driven mostly by the volume of output from agriculture, not the value. Changing agricultural commodity prices without changing volume produced and sold would not directly affect either output or employment in the rest of the economy.

Changes in the structure of U.S. agriculture over the last two decades have strengthened the ties between farming and the general economy. For example, purchased inputs increased from $51 billion in the early 1960's to $81 billion (in constant 1982 dollars) in the early 1980's. Also, far more value is now being added to agricultural products after they leave the farm. The value added in downstream industries rose to $440 billion (in constant 1982 dollars) in the early 1980's from $235 billion in the early 1960's.

Measures of Linkages

Linkages of the food and fiber system to the larger economy are shown in figure 1 (see figures at end of chapter). The $648 billion in final consumer, export, and stock demand for farm products reported in 1984 was made up of $518 billion in downstream activities, $66 billion in onfarm activities, and $65 billion in upstream activities.

The common statement that agriculture accounts for 18 percent of the U.S. gross national product (GNP) refers to the entire complex of agribusiness activities from the beginning to the end of the stream. Farming alone accounts for 2 percent of total GNP, while upstream activities account for another 2 percent and downstream activities for 14 percent.

These linkages can be described in employment terms. The 21 million jobs involved in meeting consumer and export demand and storing surplus farm products in 1984 were comprised of 16.3 million jobs downstream, 2.7 million jobs on the farm, and 2 million upstream.

1/ Underscored numbers in parentheses refer to sources listed in References section at the end of the chapter.

Effects of Policy Changes

How an economic shock or policy change in agriculture reverberates throughout the economy depends on several factors:

- Strength of the linkage.
- Size of the economic shock or policy change.
- Dependence of local economies on the farm sector and farm-related industries.

There is an order in which different parts of the total agricultural sector would be affected by an economic shock or policy change. Small changes would affect only storage by farmers or government. Large changes would start to affect farm production and input use. Still larger changes would affect exports of farm products. But, very large changes would be required to affect domestic processing, distribution, and consumption of farm products.

Similarly, small changes might have little effect on longrun prices, but larger changes would have progressively larger effects as more price-responsive parts of the food and agricultural system were affected. A change or shock large enough to substantially raise farm prices would be felt all the way to the domestic processing and consumption end of the agricultural complex and food prices would be increased substantially.

Illustrative Farm Production Effects

A look at two generic policy alternatives shows how these linkages affect the total economy. These alternatives are similar to alternatives that have been recently considered in agricultural policy. The first is similar to the current legislation embodied in the Food Security Act of 1985. The second is similar to mandatory production control programs that would be needed to support high farm prices and rapid reductions of surplus stocks at the same time.

1. The first alternative is a small annual acreage reduction program designed to limit accumulation of excess stocks by government. The program leaves long run farm prices essentially unaltered.
2. The second alternative is a large permanent acreage reduction program designed to significantly raise farm commodity prices.

In alternative 1, a reduction of 30 million acres, about 10 to 15 percent of the total program acreage, would be roughly equal to the average of the programs in effect over the last two decades. Most of the acreage reduction would come from wheat and feed grain area cuts, with smaller cuts in cotton and rice. This voluntary reduction is assumed to be implemented only to minimize excess production that would otherwise end up as government surplus. As a result, the effect on the final demand for farm products is limited to changes in stocks.

With no changes in consumer or export demand, overall economywide effects are relatively small and fall mostly on the farming and input industries. A 30-million-acre reduction would reduce final stock demand $9 billion, onfarm activities $5 billion, input industry activity $3 billion, and downstream activities $1 billion (fig. 2). The employment effects of the program would be largely limited to the same industries, affecting 315,000 jobs in farming, 162,000 in input industries, and very few jobs downstream.

Alternative 2 requires a 125-million-acre reduction program and is aimed at balancing supply and use at significantly higher commodity prices about 80 percent of parity (a measure of the purchasing power of farm commodities relative to an historic base period). The effects of alternative 2 would be substantially larger. It would require idling roughly 50 percent of the program acreage base and raising farm prices 30-40 percent above 1985/86.

The full range of economic linkages would be affected in this situation (fig. 3). A rise of 30-40 percent in farm prices would raise consumer food prices a somewhat smaller amount--20 to 30 percent. Consumers, over time, would adjust their food purchases by buying fewer high-value products such as red meats, dairy products, and highly processed food, and substituting lower value products such as vegetables, potatoes, and grains. Because of these food substitutions, total consumer food expenditures would not increase as much as the increase in prices, and the result would be a 10-percent decline in the value-weighted volume of food consumption. If exports were not subsidized, then export demand could drop by more than 50 percent in response to the increase in farm prices, and stocks would be reduced to current needs, essentially eliminating the excess stock demand.

As a result of the drastically reduced volume moving through the system, downstream activity would drop by $35 billion, onfarm activity by $18 billion, and input industry activity by $12 billion (fig. 3). Corresponding employment effects would be the redirection of 1.1 million jobs in processing and marketing, 660,000 jobs on farms, and 415,000 jobs in inputs industries for a total of nearly 2.1 million jobs that would no longer be needed in the agricultural sector. More than half of the employment changes would occur in metropolitan areas because these linked industries are distributed through urban as well as rural America.

Linkages Summary

The effects of agricultural programs are not limited to the farm sector, but also affect upstream and downstream sectors that are linked to agriculture by supplying its inputs and handling its products. The downstream linkages of farm production are very important, accounting for 14 percent of GNP and employment, while the farm sector acounts for only 2 percent, and inputs another 2 percent.

While these linkage measures are subject to some practical limitations, they support several conclusions:

- Economywide effects of large acreage reduction programs on GNP and employment can, under some circumstances, overshadow their effects on the farm economy.

- Small, annual farm programs, set up as temporary measures to limit government accumulation of stocks, tend to have little employment and income effects on the rest of the economy.
- But, large farm programs viewed as permanent measures to significantly raise farm prices affect the entire economy by causing cutbacks in industries linked to farm production.
- Not all of the nonfarm effects occur in farm or rural areas. More than half of the linked industry activity is located in metropolitan areas.

Economic Dependence on Agriculture

The third factor affecting the role of agricultural policy in rural economic development is the dependence of local and regional economies on agriculture. This section discusses the dependence of county-level economies on farming and on production of export crops. Regional dependence on agriculturally linked industries was discussed in Chapter 4.

Farm-Dependent Counties

Farm-dependent counties identified by ERS research (3) include 702 counties concentrated largely in the Great Plains and western Corn Belt, with lesser concentrations in the Delta and Southeast (fig. 4). Farm-dependent counties are defined here as having more than 20 percent of their labor and proprietors' incomes derived from farming in 1975-79. In 1950, there were over 2,000 farm-dependent counties by the same definition. Thus, an industrial tranformation has taken place in rural America. Farming remains a dominant source of economic activity in fewer than one-third of all rural counties.

Farm-dependent counties tend to have lower population density due to concentrations of large, extensive farms that use large machinery, large acreages, and relatively little labor. Their population grew at less than one-third of the rate of all nonmetro counties during the 1970's and, in some cases, has recently begun to decline.

Farm-dependent counties are much more dependent on agricultural support programs than other rural counties. Per capita Federal outlays for agriculture were nearly seven times larger in farm-dependent counties than in other rural counties in 1980. This gap has widened considerably as the level and importance of government programs has increased in the 1980's. Farmers are not the only ones affected by agricultural policies in these counties; upstream and downstream sectors as well are critically dependent on the economic health and level of output of the farm sector. Changes in government programs have manifold effects in these counties because of their dependence on farm production levels and net income levels.

Agricultural Export-Dependent Counties

Another way to gauge economic dependence on agricultural programs is by their dependence on export commodities (all of which have large government program expenditures). Export-dependent counties are defined as those having 50 percent or more of their farm sales in 1982 from export-oriented crops: corn, soybeans, wheat, cotton, and rice (4). There are 419 such counties, 173 of which are also classified as farm-dependent (fig. 4). These are concentrated in the Corn Belt and Delta States with lesser concentrations in the Great Plains and Southeast.

Because export markets flourished in the 1970's but declined over 30 percent in the 1980's, these counties have suffered the largest declines in real estate values since 1981 (but they also enjoyed the largest increase in land values in the 1970's). Land values in most such counties have declined by more than 30 percent, and some by as much as 70 percent. With the decline in export markets and the resulting expansion of government commodity program payments, these counties have become the most heavily dependent on agricultural program expenditures and are thus most vulnerable to changes in them. The Delta region is the most dependent on export commodities, with over 52 percent of farm sales of all nonmetro counties accounted for by export crops.

The farms and local economies where the dependence on government programs and the effects of changes in them would be most severe are the 173 counties that are both farm-dependent and export crop-dependent. These counties are spread throughout the central Corn Belt, the Delta, and along the Canadian border of the Great Plains. In these counties, farmers lack nonfarm employment opportunities to supplement or replace their farm incomes if they fail financially. The economies themselves are highly dependent on the fortunes of the farm economy. These counties are most dependent on continuation of government commodity programs. They have suffered the severest land value declines in the 1980's and would suffer further declines if commodity programs were severely cut.

Farm-Export Dependence Summary

Much of the financial and economic stress that has characterized farms and rural areas in the 1980's can be traced to volatility of export markets. These markets had been expanding rapidly in the 1970's and abruptly started contracting in the 1980's, causing income and net worth losses to farmers. The export oriented commodities--corn, soybeans, wheat, rice, and cotton--also have very large commodity programs. Thus, expansion of government support payments in the 1980's largely offset the declines in income in these areas. Farms in a band that encompasses the Mississippi Delta, the central Corn Belt, and the Canadian border of the Great Plains are most dependent on export commodities.

In addition, much of the economic hardship of local economies can be traced to their dependence on farming. Farm-dependent counties form a band that encompasses the Great Plains and the western Corn Belt. Minor concentrations of farm-dependent counties are in the Delta and the Southeast. In these counties, agricultural incomes and financial conditions have the largest effects on the local communities. Farm financial stress has also been high in many of these areas. Off-farm employment opportunities for farmers who fail or need off-farm income sources to supplement farm incomes are scarce to nonexistent.

Effects of Other Agricultural Sector Policies

Agricultural policies discussed thus far have been price or income support policies. There are also development policies such as research, technological development, and extension or technological adoption programs. These programs generally have been justified on the basis of assisting farmers or the sector to develop or to adjust to changing economic conditions.

Many technological advances and extension programs have reduced the drudgery and low level of living once characterizing farming. However, because agricultural sector productivity growth from technological advances has outstripped growth of markets over most of this century, the overall result has been a lowering of the real cost of food to consumers and a decline in the total resource base--land and human resources--necessary to produce the amount of agricultural commodities the markets can absorb. Thus, there has been chronic excess capacity and exit of human resources from farming over most of this century except for abnormal periods such as before and during World War I, during World War II, and in the 1970's.

These changes are an expected part of technological advance, especially for the agricultural sector. Most benefits from research and extension accrue to consumers of agricultural commodities in the long run. Farmers who adopt a new technology early obtain some temporary improvement in their incomes. But, as more farmers adopt a technological advance, the total supply of product increases faster than demand, and prices and margins for all producers are squeezed. Demand is inelastic for most farm commodities. That is, as supplies increase, prices paid by consumers decrease more than proportionally, thus reducing the revenue of farmers but benefiting consumers with more product at less total cost. Early adopting farmers can capture the benefits of a technological advance only until most farmers have been forced to adopt the new technology because of the lower prices and margins it causes. Some regions or sizes or types of farms that cannot utilize the new technology as effectively as their competitors may be permanently disadvantaged. This was the fate of much of the hill country of the Northeast earlier in this century. Displacements of farms similar to what happened in the Northeast will likely occur if technological change continues to outpace growth in demand.

The process of technological advance, squeezed incomes of farmers, and displacement of farm families was termed "the agricultural treadmill" over 30 years ago by Cochrane (1). He has more recently written that this agricultural treadmill, when combined with government commodity support programs that prevent prices from falling in response to increased supplies, causes some of the benefits of technological change to be captured by owners of farmland, rather than by consumers or farm operators, and some of the costs to be borne by taxpayers. This is because farmland is in limited supply and most farm programs pay benefits on the basis of volume of product produced, which directly reflects the quality and quantity of land operated. Farm operators essentially enter bidding wars to attempt to operate as much land as possible; hence, the benefits accrue to the land owners, not necessarily the operators. However, since almost all farmers own some of the land they operate, they have benefited from this land value increase that has accompanied farm program payments. By the same token, they would suffer the loss in land value that would accompany any decline in expected government (taxpayer) support of the farm sector.

Implications of Agricultural Program Changes for Rural Economies

Farm commodity programs are neither well-targeted to farms with financial stress nor to farm families with low incomes. A relatively large proportion of payments goes to the small number of very large producers, most of whom have above average net incomes and net worths (table 4), while a small proportion of payments goes to the large number of small producers, many of whom have low family income and low net worths. However, on average, even the small producers tend to have only slightly lower incomes but much higher net worths than the general population.

Only about 22 percent of farm program payments go to farms that show financial stress because of high debt levels and negative cash flow, and an additional 35 percent go to farms that have a high potential for stress but are currently showing positive cash flow. Thus, as much as 43 percent of program payments may be misdirected to farms which have either strong cash flow positions, relatively high net worths, or both (table 5).

Dependence on Programs

As total commodity support outlays have increased to recent levels of $22-$26 billion, the proportion that such payments are of farm cash receipts for supported commodities has increased to very high levels sometimes exceeding market receipts. The programs, thus, can be considered to be the most important market for many of these commodities (table 3). Average program payments for farms participating in commodity programs exceed the average net cash operating margins of such farms, and are up to triple the average net cash operating margin for some types of farms such as cotton or general crop farms (table 4). Thus, reducing these programs can severely affect farms producing the supported commodities. The farms and the markets have adjusted to having these programs in place over the last 50 years and would face wrenching adjustments if the programs were radically reduced.

Effects of Changing Programs

Even though the programs may not be contributing much to rural development or rural well-being objectives as currently written, radically or precipitously changing them can severely affect rural economies. Changing the programs leads to immediate changes in the income positions of farms and the rates of return to farm assets. Of equal or greater importance would be the resulting change in farm asset values. There is strong evidence that farm asset values are determined by an expectation mechanism that includes:

- Expected market returns to land.
- Expected levels of program benefits.
- A subjective discount rate for the uncertainty of returns and benefits.
- The real interest rate (nominal interest rate minus the rate of inflation).

Because farm asset values are determined largely by the expected net return to such assets, the effects of decreasing program payments, unless offset by stronger market prospects, would be rapid and magnified declines in farm asset values.

Farmland values have already declined by up to 70 percent in some areas heavily dependent on farm program crops, largely in response to reduced prospects for market returns, high real interest rates, and uncertain prospects for the continuation of the recent high levels of government payments. If cutbacks in government support are to leave farm asset values unchanged, then program outlays can only be cut as fast as market returns prospects expand, or real interest rates decline, or both.

Effects on Linked Sectors

Because farming has strong upstream and downstream linkages to sectors that supply its inputs and handle its products, local and regional economies and even the national economy can be severely affected by changes in agricultural programs. Changing the volume of product that can be produced or increasing the domestic prices of products such that domestic or export demand is cut can have implications far beyond the farm sector as upstream and downstream sectors are affected and GNP and employment losses occur (fig. 1, 2, and 3). The Delta, the Northern and Southern Plains, and the Corn Belt would be most affected by changes in programs. The farm sector would be most severely affected in the export crop-dependent areas and the local economies would be most severely affected in the farm-dependent areas. The most severely affected economies would be those 173 counties that are both farm-dependent and export crop-dependent (fig. 4). In these regions, cash grain farms and cotton farms are dominant. For these types of farms, the percentage of gross farm income derived from government outlays is the highest (nearly 10 percent) and the direct government payments exceed the average net cash operating margins of such farms (table 4).

References

1. Cochrane, Willard W. *The Development of American Agriculture: A Historical Analysis*. University of Minnesota Press, 1979.

2. Harrington, David H., Gerald Schluter, and Patrick O'Brien. *Agriculture's Links to the National Economy,* AIB-504. Economic Research Service, U.S. Department of Agriculture, Oct. 1986.

3. Hoppe, Robert A. *Agricultural Counties: Their Location, Farms, and Economies,* Staff Report AGES810213. Economics and Statistics Service, U.S. Department of Agriculture, Feb. 1981.

4. Martinez, Doug. "Where Export Declines Hit Hardest," *Farmline*, Vol. VIII, No. 10, Economic Research Service, U.S. Department of Agriculture, Oct. 1986.

5. Petrulis, Mindy, Bernal Green, Fred Hines, Richard Nolan, and Judith Sommer. *How is Financial Stress Affecting Rural America?* AER-568. Economic Research Service, U.S. Department of Agriculture, May 1987.

Table 1—Agricultural support program provisions, applicable commodities, and purposes

Program provision	Applicable commodities	Primary purposes
Loan/storage programs	Feed grains, wheat, rice, cotton, semifinished sugar, soybeans	Stabilize commodity prices, provide buffer stocks
Target prices/deficiency payments	Feed grains, wheat, rice, cotton, wool	Support effective farm prices without raising commodity prices
Marketing loans (loans made at support prices but repaid at market prices, if lower)	Rice, cotton	Allow commodity prices to adjust to world export price levels to stimulate exports
Payment-in-kind (PIK)	Feed grains, wheat, rice, cotton	Reduce government stocks, reduce budgets of programs
Generic commodity certificates (PIK Certificates)	Feed grains, wheat, rice, cotton, soybeans, (authorized but not used for honey, dairy products)	Reduce government stocks, reduce budgets of programs
Export enhancement programs	Feed grains, wheat, wheat flour, rice, cotton, dairy cattle, dairy products, poultry, vegetable oil, other products	Reduce government stocks, stimulate exports
Import control programs	Sugar, dairy products, feed grains, wheat, rice, peanuts, beef, cotton	Reduce government cost from import substitution
Acreage reduction and paid land diversion programs	Feed grains, wheat, rice, cotton	Control commodity supplies, control government costs
Commodity price support purchases	Dairy products, honey	Raise market prices
Dairy herd buyout program (payments to cease dairy production)	Milk	Control supplies, control government purchases
Dairy set-aside (payments for reducing milk production)	Milk	Control supplies, control government purchases
Production quotas	Tobacco	Control supplies, raise market prices
Marketing quotas	Peanuts (authorized but not used for wheat)	Control supplies, raise market prices
Conservation reserve	Erodible land	Retire erodible land from crops, control supplies, control government costs
"Swampbuster" and "Sodbuster" provisions	All supported commodities	Control government costs, control conversion of land for supported crops
Marketing orders	47 fruits and vegetables, dairy products	Stabilize market supplies and prices, raise market prices for some products
Financial programs	All commodities	Provide stable sources of credit to farmers, provide preferential interest rates, provide emergency lending and lender-of-last-resort programs, provide crop insurance and disaster payments

Table 2—Government program outlays to farmers, 1981-87

Program	1981	1982	1983	1984	1985	1986[P]	1987[F]
	Million dollars						
Commodity programs:							
1. Direct commodity payments 1/	1,401	3,230	8,948	8,047	7,398	11,380	13,786
2. Net CCC loans	3,081	9,080	2/(749)	(816)	11,814	8,310	2,165
3. Dairy support purchases	1,830	2,089	2,107	1,560	1,875	1,825	950
4. All commodity programs (1+2+3)	6,312	14,399	10,306	8,791	21,087	21,516	16,901
Conservation programs:							
5. Direct conservation payments 1/	531	262	349	386	306	432	1,692
All direct payments (1+5)	1,932	3,492	9,295	8,433	7,704	11,813	15,478
All government outlays (4+5)	6,843	14,662	17,668	15,998	21,575	21,948	18,593

1/ Including PIK commodities and certificates.
2/ Data entries in parentheses indicate net decreases in loans.
P = Preliminary.
F = Forecast.
Source: Farm Sector Financial Analysis Branch, Economic Research Service, U.S. Dept. of Agriculture.

Table 3—Government commodity program outlays to farmers and proportions of market receipts by commodity, 1981-87

Commodity	1981	1982	1983	1984	1985	1986P	1987F
			Million dollars/percent				
Feed grains: 1/ 2/							
Total outlays	2,094	6,889	2,648	2,067	11,031	7,303	8,357
Percentage of farm cash receipts	13.2	25.1	10.4	7.6	35.1	27.5	42.6
Wheat: 1/							
Total outlays	1,584	2,884	2,814	2,651	4,463	2,945	3,327
Percentage of farm cash receipts	16.1	29.1	3.20	31.1	56.5	44.5	65.3
Rice: 1/							
Total outlays	3/(7)	595	473	562	924	769	937
Percentage of farm cash receipts	-.4	39.7	52.6	56.2	102.7	109.9	156.2
Cotton: 1/							
Total outlays	158	1 ,761	720	163	2,344	1,258	869
Percentage of farm cash receipts	3.9	39.1	19.5	4.9	61.6	48.4	36.2
Dairy products: 4/							
Total outlays	1,830	2,089	2,107	2,099	2,299	2,446	1,415
Percentage of farm cash receipts	10.1	11.5	11.2	11.7	12.7	13.7	8.1
All supported crops:							
Total outlays	6,312	14,399	10,306	8,791	21,087	21,516	16,901
Percentage of farm cash receipts for supported crops	13.3	23.2	17.9	15.6	34.8	40.9	38.6

1/ Includes an allocation of PIK commodities distributed at loan rates.
2/ Includes soybeans which have a CCC loan/storage program only.
3/ Data entry in parentheses indicates negative net outlays.
4/ Includes dairy diversion payments in 1984 and 1985, and dairy herd buyout programs in 1986 and 1987.
P = Preliminary.
F = Forecast.
Source: Farm Sector Financial Analysis Branch, Economic Research Service, U.S. Dept. of Agriculture.

Table 4--Direct commodity payments: distribution and importance to farm incomes, 1985

Farm group	Share of all direct commodity payments	Average direct payment per reporting farm	Percentage of gross farm income	Percentage of average net cash operating margin 1/
	Percent	Dollars	Percent	Percent
Cash grain	61.7	12,612	9.3	74.5
Cotton, tobacco	10.0	24,148	9.4	293.9
Veg., fruit, nut	1.6	14,831	1.0	96.6
Nursery & greenhouse	(d)	(d)	(d)	(d)
Other crops	2.4	7,026	2.8	208.6
Beef, hog, sheep	14.0	5,849	2.3	-951.0
Dairy	9.5	7,967	2.4	50.2
Poultry	.1	2,578	.1	6.3
Other livestock	.7	5,632	1.2	-80.2
All farms	100.0	10,520	4.4	118.5
$500,000 and over	15.5	49,132	2.2	25.2
$250,000 - 499,999	21.9	25,155	4.9	48.8
$100,000 - 249,999	36.8	14,122	5.9	63.8
$ 40,000 - 99,999	18.9	6,681	5.6	88.4
$ 20,000 - 39,999	4.8	3,823	5.0	-1,033.0
$ 10,000 - 19,999	1.5	1,801	3.4	-42.6
Less than $10,000	.7	880	1.9	-17.0
All farms	100.0	10,520	4.4	118.5

(d) Data withheld because of possible disclosure or statistical unreliability.

1/ Farm cash income minus cash production expenses, interest, and principal payments.

2/ Negative figures indicate group had a negative average net cash operating margin

Source: 1985 Farm Costs and Returns Survey, Econ. Res. Serv., U.S. Dept. Agr.

Table 5--Government programs expenditures, by farm financial stress class, 1985

Farm financial strength class	Proportion of all farms	Share of program expenditures	Average payment per reporting farm	Percentage of of gross farm income	Percentage of average net cash operating margin 3/
	--Percent--		Dollars	--Percent--	
Class I, least stressed (positive cash flow 1/, low debt) 2/	31.0	15.8	11,837	5.9	62.8
Class II (positive cash flow, moderate debt)	14.3	25.3	31,198	.8	92.2
Class III (positive cash flow, high debt)	10.1	35.0	49,860	16.3	131.4
Class IV (negative cash flow, low debt)	28.8	1.6	8,624	6.1	-235.9
Class V (negative cash flow, moderate debt)	9.7	6.2	14,348	7.7	-88.6
Class VI, most stressed (negative cash flow high debt)	11.2	15.8	22,223	11.0	-65.5
All farms 4/	99.6	99.8	23,836	10.3	268.4

1/ Cash flow is total cash income from farm and nonfarm sources less cash production expenses, interest, and principal payments and a minimum allowance for family living expenses.

2/ Low debt is debt/asset ratio of less than 0.1, moderate debt is between 0.1 and 0.4 and high debt is greater than 0.4.

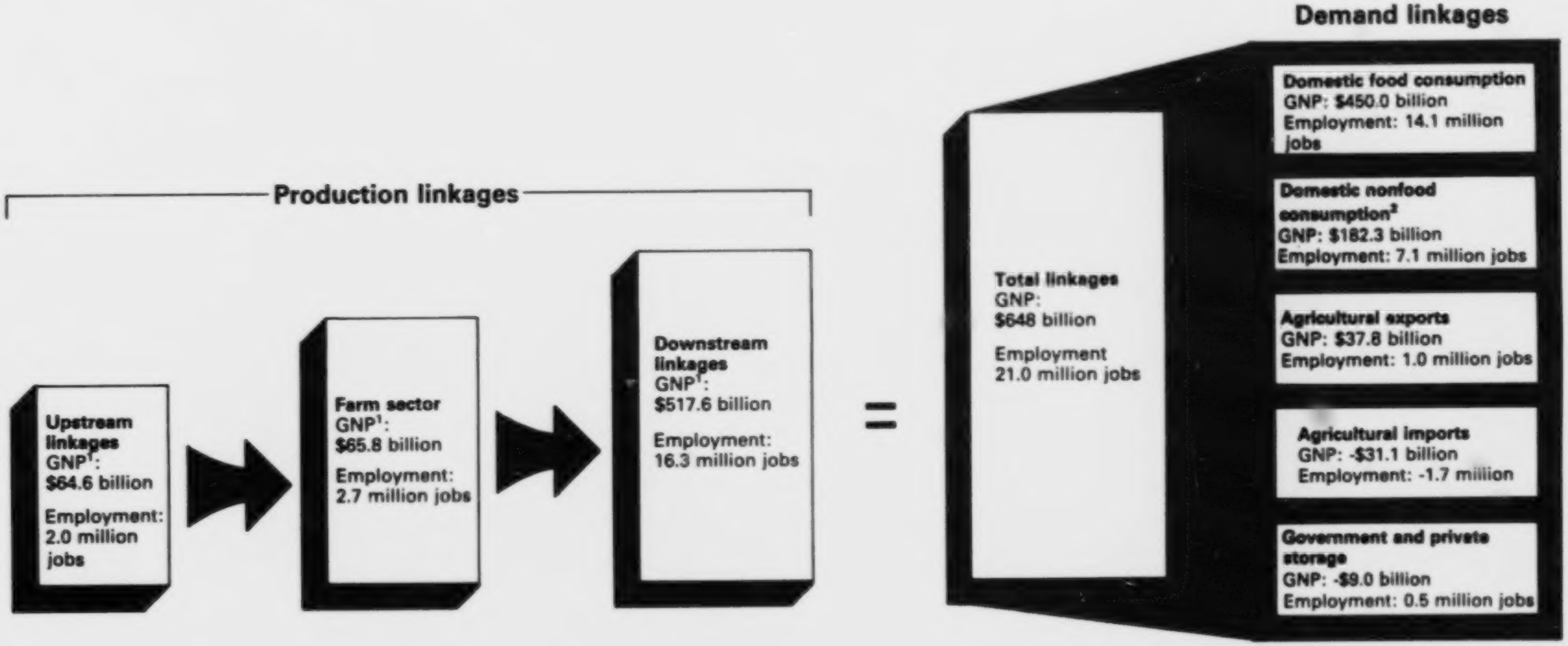
3/ Net cash operating margin is farm cash income less cash production expenses, interest, and principal payments.

4/ Excludes farms which reported no owned assets (0.25 percent of program expeditures).

Source: 1985 Farm Costs and Returns Survey, Econ. Res. Serv., U.S. Dept. Agr.

Figure 1

Agricultural Sector GNP and Employment Linkages, 1984

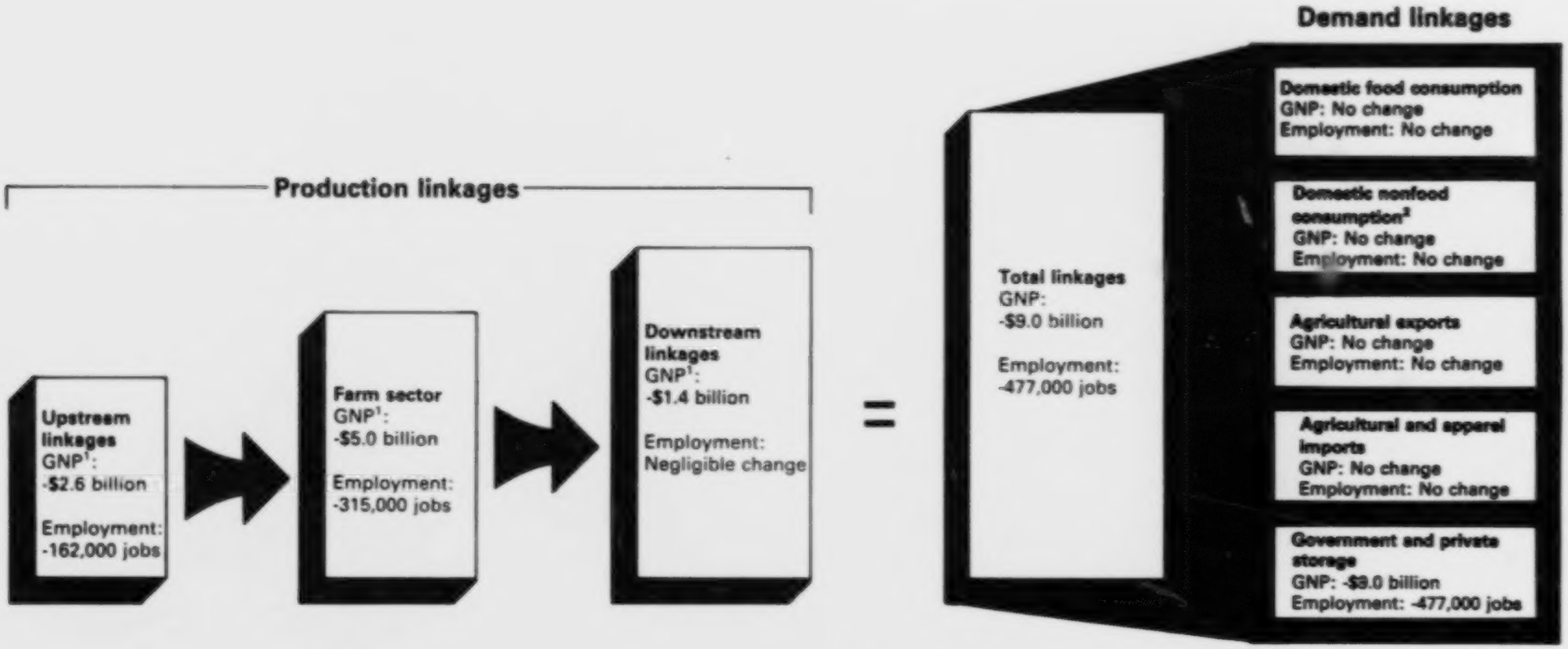

Demand linkages
Production linkages
Upstream linkages
GNP[1]:
$64.6 billion
Employment:
2.0 million jobs
Farm sector
GNP[1]:
$65.8 billion
Employment:
2.7 million jobs
Downstream linkages
GNP[1]:
$517.6 billion
Employment:
16.3 million jobs
=
Total linkages
GNP:
$648 billion
Employment
21.0 million jobs
Domestic food consumption
GNP: $450.0 billion
Employment: 14.1 million jobs
Domestic nonfood consumption[2]
GNP: $182.3 billion
Employment: 7.1 million jobs
Agricultural exports
GNP: $37.8 billion
Employment: 1.0 million jobs
Agricultural imports
GNP: -$31.1 billion
Employment: -1.7 million
Government and private storage
GNP: -$9.0 billion
Employment: 0.5 million jobs

[1] Scaled to level of demand to correct for small errors introduced in calculation.

[2] Clothing, shoes, tobacco, cut flowers, seeds, and potted plants.

Figure 2

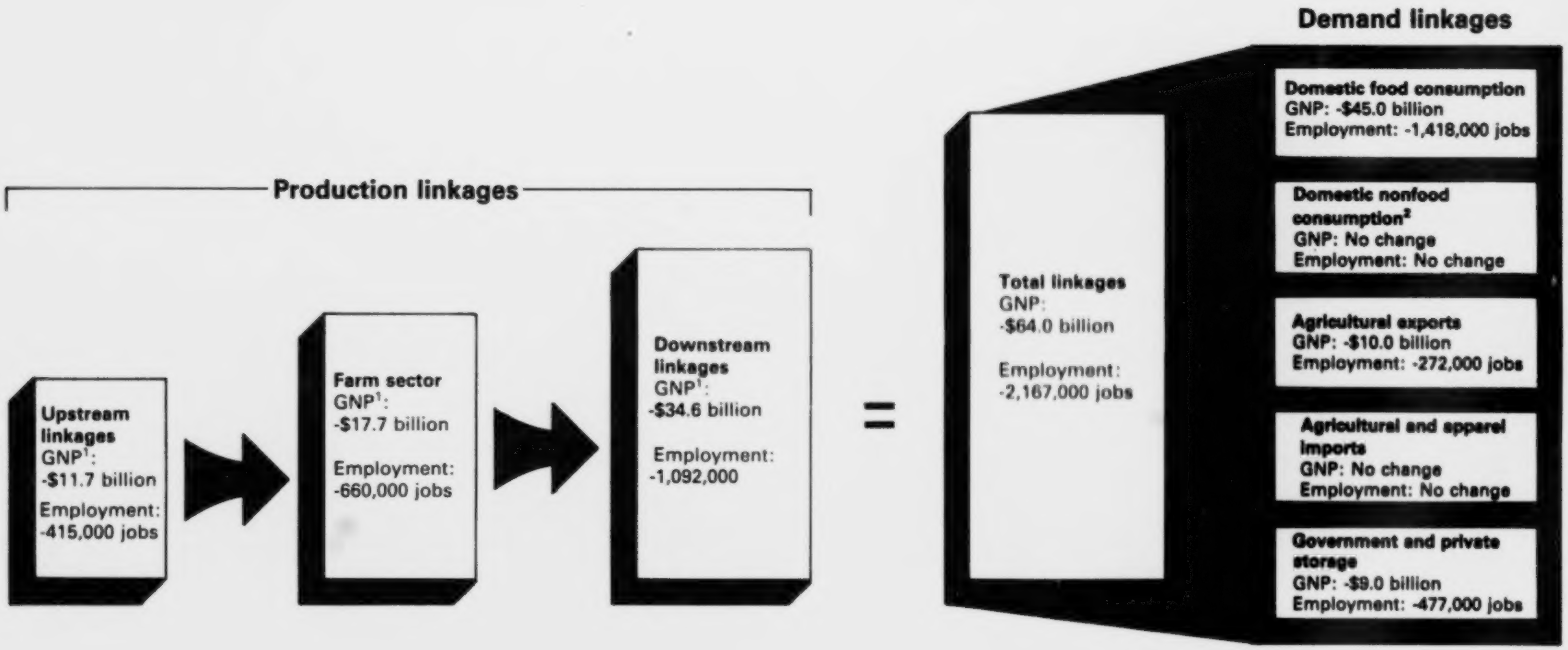
How a Small Acreage Reduction Program Would Change Agricultural Sector GNP and Employment


Demand linkages
Production linkages
Upstream linkages
GNP[1]:
-$2.6 billion
Employment:
-162,000 jobs
Farm sector
GNP[1]:
-$5.0 billion
Employment:
-315,000 jobs
Downstream linkages
GNP[1]:
-$1.4 billion
Employment:
Negligible change
=
Total linkages
GNP:
-$9.0 billion
Employment:
-477,000 jobs
Domestic food consumption
GNP: No change
Employment: No change
Domestic nonfood consumption[2]
GNP: No change
Employment: No change
Agricultural exports
GNP: No change
Employment: No change
Agricultural and apparel imports
GNP: No change
Employment: No change
Government and private storage
GNP: -$9.0 billion
Employment: -477,000 jobs

[1] Scaled to change in demand to correct for small errors introduced in calculation.
[2] Clothing, shoes, tobacco, cut flowers, seeds, and potted plants.

Figure 3

How a Large Acreage Reduction Program Would Change Agricultural Sector GNP and Employment


Demand linkages
Production linkages
Upstream linkages
GNP[1]:
-$11.7 billion
Employment:
-415,000 jobs
Farm sector
GNP[1]:
-$17.7 billion
Employment:
-660,000 jobs
Downstream linkages
GNP[1]:
-$34.6 billion
Employment:
-1,092,000
=
Total linkages
GNP:
-$64.0 billion
Employment:
-2,167,000 jobs
Domestic food consumption
GNP: -$45.0 billion
Employment: -1,418,000 jobs
Domestic nonfood consumption[2]
GNP: No change
Employment: No change
Agricultural exports
GNP: -$10.0 billion
Employment: -272,000 jobs
Agricultural and apparel imports
GNP: No change
Employment: No change
Government and private storage
GNP: -$9.0 billion
Employment: -477,000 jobs

[1] Scaled to change in demand to correct for small errors introduced in calculation.
[2] Clothing, shoes, tobacco, cut flowers, seeds, and potted plants.

CHAPTER 13

PUBLIC INFRASTRUCTURE AND ECONOMIC DEVELOPMENT

William F. Fox

Abstract. New infrastructure investments should be used selectively as development tools because they will stimulate income growth in some rural communities and not in others. Infrastructure will probably have the greatest effect where other characteristics necessary for development are present and there is a shortage of existing infrastructure, but the potential for each community must be evaluated on its own merits. Infrastructure investments in transportation and quality of telecommunications and electric services are likely to be the most important infrastructure-related development tools for rural communities. Although Federal grant programs continue to provide substantial financing for transportation infrastructure, they have been reduced in support of other infrastructure investment needs.

Investments in physical infrastructure are made to achieve several different objectives. First, infrastructure is built with the goal of providing services to enhance residents' quality of life. School buildings, recreational facilities, and transportation systems all are constructed to facilitate delivery of services demanded by local residents. Second, infrastructure helps deliver services, such as water and telecommunications, which are used by business firms as they produce goods and services. In serving those needs, a community may have the related aim of achieving greater economic development by attracting business firms, people, and economic activity. Also, infrastructure investments may be made to enhance community pride, as when a community builds an airport terminal. Politicians may have separate goals, such as the desire to provide visible evidence that their constituents are being served.

Infrastructure may be built to serve some or all of these goals simultaneously and each of them may be an appropriate reason for making infrastructure investments in rural communities. However, this paper

---

William Fox is an associate professor of Economics and Associate Director of the Center for Business and Economic Research at The University of Tennessee, Knoxville.

focuses on the narrower issue of whether new infrastructure investments are an effective means of achieving one goal, the stimulation of rural economic development. Infrastructure investments are frequently assumed to be a good development mechanism, and this justification is often used to defend large spending programs for new roads, expansions of water and sewage systems, or other infrastructure investments. The validity of this assumption for rural communities of the United States is examined here. The conclusion can be succinctly stated that there are some circumstances and some communities where public infrastructure investments will stimulate economic development, and some where they will not.

The paper is divided into four sections after the introduction. The first is devoted to the definitions which focus the paper. The second section is an examination of what is known about the role of infrastructure in stimulating development. The next is a consideration of the role of the Federal Government, and to a lesser extent State and local governments, in financing infrastructure. This also includes examination of the compatibility of Federal infrastructure financing trends with stimulation of rural economic development. The final section is an evaluation of infrastructure needs and a hypothesis about the future role of infrastructure.

Defining Public Infrastructure and Economic Development

Public infrastructure is defined for this chapter as the physical capital investments traditionally supported by the public sector to enhance private sector production. Infrastructure has been called economic overhead capital because it is "primarily oriented toward the support of directly productive activities or toward the movement of economic goods" (21, p. 5).[1] It should be noted that the public infrastructure is frequently used by people as well as by businesses. Included in this group are roads, water systems, seweage systems, electricity, telecommunications, and other transportation modes, such as railroads and airports. This definition is consistent with the one used recently by the National Council on Public Works Improvement (33, p. 2). This group excludes some items which could be regarded as part of the total infrastructure, such as investments in human capital and the investment by business firms in their productive capital. This study focuses on the more narrow concept of publicly available, physical infrastructure to determine its potential for stimulating economic development.

A key difference between many types of economic overhead capital and social overhead capital (development of human capital, for example) is that the former must frequently be delivered to the home or business where it is used, whereas people will often travel to the latter. Many people will travel to a university if one is unavailable nearby, but the same is not true of water and electric services. These must be provided where they are to be consumed. Thus, economic overhead capital must be in the place where incomes are generated.

---

[1] Underscored numbers in parentheses refer to sources listed in the References section at the end of the chapter.

There is often a tendency to focus on the physical facility when examining the role of infrastructure. Political leaders, for example, may see a facility's construction as evidence of achievement. But it is important to remember that businesses and people are primarily interested in the services derived from the physical facility. Specific concerns with the facility generally arise only when consumers must access the facility to receive the service benefits.[2] Most services derived from economic overhead capital are brought to the user for consumption, so the facility is generally not directly important as a component of the service. Water and sewerage are examples of services where the facility is of little concern to consumers, since they can receive the service without traveling to the physical facility. A highway, on the other hand, is an example where the physical infrastructure is an important aspect to consumption of the service.

Not all forms of public infrastructure are totally provided by or through the public sector. The relative roles played by the public and private sector vary widely nationwide and by infrastructure type. For most services there is joint involvement of the public and private sectors with the difference being a matter of degree. This can be clarified by separating the necessary functions into financing, construction, ownership, operation, and control over use of the facility. At one extreme are roads; the rural public sector frequently has the roles of financing, owning, operating, and controlling them, while the private sector constructs them. An exception is when the private sector builds and finances roads in new housing developments.

At the other extreme is telecommunications, where the private sector frequently has the roles of financing, constructing, owning, and operating and the public sector only exercises some control. Public control and partial financing combined with private ownership, operation, and construction are present in the case of privatization efforts, such as with some water and sewer service delivery.

Magnitude of Infrastructure Investment

Much has been said about deterioration of the public infrastructure, partly because of the decline in capital purchases relative to gross national product (GNP). Federal, State, and local governments spent

---

[2] An exception is when the facility fails, such as when a sewer line breaks. Failure often brings people into contact with a physical facility they otherwise would take for granted.

$92.8 billion in 1985 on nondefense capital outlays, which include both economic and social overhead capital (38). Capital purchases in 1985 were approximately 2.4 percent of GNP, substantially lower than the 3.3 percent in 1960. However, the data do not necessarily mean the infrastructure is deteriorating, because there are many reasons to explain a relative decline in infrastructure expenditures.3/ One arises because infrastructure can remain productive for many years after it is built. Only proper maintenance and additions (because of growth in demand or to offset depreciation) are necessary after the infrastructure is in place. So construction expenditures for infrastructure will generally fall after construction is finished.

The categories of infrastructure that are purchased have changed over time, depending on factors such as demographic demands or national policy. For example, when the baby boom population approached school age, a greater share of investments shifted to school buildings, When the interstate highway system was being substantially completed, more spending was oriented to roads. In 1985, the greatest share of spending was for highways, followed by education and utilities.

Definition of Economic Development

When examining the role of infrastructure it is important to define what is meant by economic development. First, development must be measured in degree, as nearly every place in the United States would be regarded as developed by comparison with many other places around the world. The degree of economic development is measured in this paper by the relative level of per capita personal income (employment could also be used for this purpose). Economic development is said to improve in a low-income area if its per capita income is growing relative to the national average.4/ Other aspects of economic development could be described, but are not considered here.

Do Infrastructure Investments Promote Economic Development?

Public infrastructure contributes to the creation of income in numerous ways. The movement of goods to market frequently requires a road. The movement of inputs to firms, including workers to their jobs, also requires roads. The role of a water system and many other components of the infrastructure as direct inputs in production processes is equally apparent. Thus, infrastructure makes necessary contributions to economic output. The issue, however, is whether additional investments in public infrastructure effectively promote economic development of the Nation and more specifically, of individual rural areas.

3/ See (13) for further discussion of interpreting expenditure data.

4/ Haveman also used income to measure development (23). It is recognized that actual income disparities could grow as relative ones narrow. A more stringent definition would be to define development as a narrowing of both the actual and relative income disparity.

New infrastructure investments have the potential for enhancing economic development, but the effect on any individual location depends on a number of factors. This section describes three of these factors: the linkage between economic development and infrastructure, the manner in which infrastructure is financed, and the existing economic development of the community. Analysis of these can be used to measure the potential effectiveness and policy applicability of infrastructure investments for achieving economic development. This section also includes discussion of transportation infrastructure and unique needs of service industries.

Linkages Between Infrastructure and Economic Development

One key to determining whether infrastructure investments are effective for stimulating economic development is to identify whether economic development causes more infrastructure investment or more infrastructure enhances economic development. More infrastructure must lead to greater economic development (rather than the reverse) if capital investments are to be effective in stimulating development. Infrastructure can also play an important role in accommodating growth, but in this case there is no need to locate the infrastructure prior to the growth. Consideration of the possible types of linkages will help identify direction of the causality, and therefore the role played by infrastructure in development. Whatever the causality, infrastructure is likely to stimulate substantial development only where the factor limiting growth is a shortage of public infrastructure. Where substantial excess capacity exists or where there is no demand for a particular type of infrastructure, little stimulation from new investments can be expected.

Infrastructure can be linked causally to economic development in three ways: through the supply side, the demand side, and redistributive effects. The importance of the explanations will differ by infrastructure type, geographic location, and existing economic development. In fact, it is likely that each of the three effects partially explains how a given type of infrastructure investment will influence different communities. Table 1 (at end of chapter) gives an overview of the expected causality, and the conclusions are summarized in the following pages.

Supply-Side Linkages. A supply-side linkage between infrastructure and economic development exists whenever the infrastructure enters directly in the production process of business firms or when it makes other inputs more productive. Electric and water services are examples of infrastructure's direct use in a firm's production processes. Labor may be more productive because good roads ease the movement of workers to their jobs. Telecommunications may also make labor more productive, particularly in rural areas, where a firm is likely to be separated from its customers.

Supply-side effects permit an increase in regional income by allowing existing firms to expand their output for given costs. Supply-side effects also increase the level of economic development if firms are attracted to start up in or relocate to an area because of something unique about its infrastructure or because of excess capacity or supply in its infrastructure.

This supply-side explanation of the linkage is generally the basis on which infrastructure enters an area's development strategy. As existing or new firms in an area produce more, area residents and owners of firms reap higher incomes. This linkage indicates a net gain for the national economy unless resources expended on the infrastructure exceed the longrun output gain from using the infrastructure.

Demand-Side Linkages. Demand-side linkages between economic development and the availability of public infrastructure arise in two ways. First, economic development may occur because of wage and nonwage expenditures during the construction process. Second, new infrastructure may be demanded because of higher incomes or expanding firms. In the latter case, the stimulation of development is less obvious.

With the first demand-related explanation, income is generated as money is spent to construct infrastructure. For example, when a highway is built, local incomes are created as local people are hired to build the road or as construction workers spend money in the community. The increase in personal income will be greater when local people or a local firm are hired. The net local income effect will also be greater if the project is financed with Federal grants rather than local taxes or user fees because the construction costs are paid with revenues from outside the area. Thus, local residents are able to spend income, which otherwise would finance the infrastructure, on other goods and services. The income generated also depends on the size of the local income multiplier. The multiplier for rural communities is not large, probably falling between 1.1 and 1.5, in most cases, and in some cases is under 1 (20).

Increases in income arising from construction of the facility are one of the benefits from new infrastructure. The benefits are generally short-lived, however, by comparison with the facility's life, because they end when the construction is completed (or decline to equal the facility's operating costs, which are generally a small part of construction costs). Although these effects are a benefit from construction, they are likely to be small by comparison with benefits derived from services provided by the infrastructure. Further, construction programs usually are justified as a way to generate incomes in a local area only in extreme circumstances such as during the 1930's.5/ This is because income spillouts from the community

---

5/ Federal and State programs are more commonly justified in this manner, since spillouts become less as the geographic area expands.

make this a very expensive way to generate local income, and the income generation effects dissipate once the project is constructed. Income spillouts occur when residents purchase goods produced outside the area, pay Federal taxes, or otherwise cause local incomes to flow outside the community.

The latter demand-side explanation describes the situation where greater development causes people and businesses to demand more infrastructure. Public capital and private economic activity may increase together, but the direction of causality implied by this argument indicates that increases in local incomes caused the public capital to be built, because of increasing tastes for services delivered with the infrastructure. In many cases, the infrastructure is expanded to support the growth of existing firms. Alternatively, the infrastructure may have been expanded to meet growing service demands by people for roads, sewer services, and other infrastructure. In some cases, infrastructure intended to enhance people's quality of life, such as recreational facilities, may be added as a result of pressure by business firms, because firms are increasingly concerned about maintaining a high quality of life for employees.6/ This demand-side explanation can be an appropriate reason for building or expanding infrastructure, but the resulting public infrastructure may not create (or stimulate) new development.

The second demand-side explanation can lead to indirect stimulation of economic development in two circumstances. The first is if the local quality of life is improved by better infrastructure and people and firms move to an area to take advantage of the improved quality of life. Here, development occurs indirectly because the community is a better place to live and not because the firm's ability to produce has been enhanced. The second may occur if new infrastructure is built to meet growing demand, but is built with excess capacity to accommodate more firms than are currently in the community. Firms could be attracted because they anticipate supply-side advantages arising from the available infrastructure.

Careful analysis is necessary to determine the reason for the linkage between development and infrastructure. A positive correlation between infrastructure and development may exist if any of these supply- or demand-side explanations hold, but that does not necessarily mean that the infrastructure is stimulating development. Looney and Fredericksen (30) found evidence that infrastructure was the initiating factor in development, rather than an accommodating factor. However, their study was based on Mexico, where the overall level of development is lower, and it may not be possible to extrapolate their results to the United States.

6/ Firms may find production costs are reduced in a particular area if better quality of life allows workers to be attracted at lower wage rates.

Redistribution of Economic Activity. Public infrastructure may redistribute economic activity between rural and urban or among rural places if private firms relocate to take advantage of more readily available or less congested public infrastructure. This is the third linkage between infrastructure and development. It is connected with the two previous explanations, because firms choose to relocate to take advantage of infrastructure only if they feel that it offers supply or demand (such as quality of life) advantages. They also may relocate if new infrastructure permits firms to consider options previously unavailable. For example, an improved highway to a rural community may motivate a firm to move from an urban location because of wage cost advantages or lower congestion, the benefits of which were formerly offset by transportation costs.

Redistributive effects are a zero sum game from the national economic efficiency perspective if they merely shift firms and people from one location to another rather than increasing the number (or size) of firms. True, local income will rise if better access to infrastructure enables existing or new firms to produce more. However, the local economy may suffer a net loss if the cost of building new infrastructure exceeds the income increase plus the gains in consumer well-being. Even if no increase in output is generated nationwide, it may be desirable to use infrastructure to stimulate development in some places at the expense of others to achieve a desired income redistribution from high-income to low-income areas of the United States. But redistribution requires a decision to favor some communities, because little redistribution can occur if all places are treated identically.

Local communities are often tempted to add infrastructure in hopes of attracting new firms or plant locations. Many types of infrastructure are replicable and can be added or augmented at any location that a city or firm desires.7/ But for infrastructure to be an effective development tool, communities must be selective in their choice of infrastructure. They must realize that little relative advantage is gained by building infrastructure that can also be built elsewhere. Also, some firms may be so small that the cost of building new infrastructure or expanding existing infrastructure is too high relative to the gain. Or the cost of building infrastructure before firms locate may be greater in some cases than the perceived benefits. On the other hand, some firms may want to relocate quickly, and communities without existing excess capacity would not be candidates for the firms. Some infrastructure, such as major highways, is (and must be) financed by a higher level of government and is not an option for individual communities or firms to finance. Finally, for some rural communities the diseconomies of small scale make infrastructure relatively expensive to build.8/

7/ This does not mean that the costs of delivering services from infrastructure will be equal at all locations.

8/ Only limited diseconomies of small scale exist for most services. The greatest diseconomies, however, will arise for services which use substantial public infrastructure (15).

Financing Infrastructure Investments

The effect infrastructure has on economic development depends partly on how it is financed. Rural governments have three ways to finance new capital investments: Federal and State assistance, debt, and own source revenues (taxes and user fees). Infrastructure financed by Federal or State grants may be seen as a free input by business firms, since its value to them is not offset by increased local fees or taxes.[9] Other things equal, firms would likely seek locations where free inputs are available. However, grants are frequently designed to pay only for construction costs associated with a new facility. Firms generally pay at least some of the facility's life cycle costs, which will also include operations, maintenance, and replacement after its life is completed. So even with a Federal grant, firms probably do not regard infrastructure as a totally free input. Firms may be more likely to consider major roads and airports free since they may pay a very small part of the cost of such a facility.

When grants are unavailable, the firm pays a price for infrastructure services, unless the price is borne through fees or taxes. This point is true whether the fees are paid to the local government or to a private firm operating the infrastructure. It is also true if debt financing is used, because debt only shifts the timing of the firm's payment for the infrastructure. The tax or fee reduces the net benefits derived from the facility.

Whether a firm pays the full cost, more than the full cost, or less than the full cost for services it receives depends on how the tax or fee system is structured. Another possibility is that the local government provides more of the infrastructure than the firm would choose to finance, and yet the firm must pay taxes to support it. Finally, the costs may differ between areas because of technology, such as the need to use surface versus ground water, or economies of scale. In sum, availability of infrastructure offers little locational advantages if the infrastructure can be replicated easily, the costs of service delivery are equal at all locations, and the firm pays the full cost of services received. A subsidy can be provided to firms or extracted from firms depending on how the tax system is structured and this could be used to provide an incentive or disincentive to locating in a community.

Type of Local Area

The effect of infrastructure on economic development is likely to vary by geographic area since availability of infrastructure is only one aspect of business production needs. Infrastructure investments will probably enhance development for some communities but not for others. There are probably few communities where new infrastructure guarantees greater development (a probability of 1) and few where it is certain to have no developmental effect (a probability of 0). Simply, this means that infrastructure investments generally must be made with uncertainty regarding their success at stimulating development.

---

[9] Intergovernmental assistance is not a unique way to generate revenues, but is a mechanism for shifting the responsibility for financing infrastructure from one level of government to another. One level of government must ultimately use own source revenues to pay for the infrastructure.

Hansen (21) made a similar point as he separated regions into congested, intermediate, and lagging. He described congested regions as large urban areas where the benefits of new infrastructure investments were expected to be lower than the costs imposed by further increases in population and congestion. He described lagging regions as undeveloped rural areas with small-scale agriculture and stagnant or declining industries, where new infrastructure would be unproductive because the necessary human resources were not in place. (Such regions need to emphasize development of the social overhead capital.) He described intermediate regions as having other features necessary for economic development, and these were the places where infrastructure was most likely to make a difference.

There is limited research to support the view that the effect of infrastructure depends on the community's economic environment. Looney and Fredericksen did conclude that infrastructure investments had the greatest developmental effect in intermediate regions and social overhead capital had the greatest effect in lagging regions (30).

Hansen's point that infrastructure will not cause development in all places is valid, but his characterization of regions fails to completely describe the experience of the past 20 years. Some apparently congested urban places have continued to grow and new infrastructure, such as subway systems, has offset some of the congestion problems and has been an important reason for growth. Some rural communities which would have been regarded as lagging also grew rapidly because of their natural resources, their attractiveness to retired people, or their low wages. Infrastructure was probably not the stimulus for growth in most of these places, but it was necessary to accommodate growth. The lesson here is that the group of lagging communities, where the probability of infrastructure stimulating development is low, must be defined carefully.

Infrastructure investments can be expected to have the greatest payoff if they are oriented to areas with the highest probability of stimulating economic development. Development patterns of different types of communities in recent years illustrate that the probability of infrastructure encouraging development is unlikely to be zero in any place, but it will be higher in some places than in others. Determination of the communities with the highest payoff is complicated because changing economic and demographic structures will alter the dynamics of growth so that those places and industries with the greatest potential at one point in time may not be at another. Thus, analysts must continually reconsider the sources of development. Current directions in the economy suggest that infrastructure investments must be made with consideration of the service economy's needs, the growing importance of transportation, human capital requirements, and the existing levels of infrastructure. Today's intermediate rural communities (those where infrastructure can be an important growth stimulant) are likely to have an appropriately trained and available labor force, a high quality of life (which is influenced by the existing level of infrastructure), and good location vis-a-vis input and output markets. New infrastructure may be important for development in other communities because they are prime candidates for specialized development, such as a retirement community.

Guidelines for Infrastructure Investments

The concepts discussed so far suggest some conclusions regarding infrastructure investments and rural economic development. Since empirical evidence is limited or nonexistent, many of the conclusions presented here are based on judgment rather than on findings supported by research.

First, a basic infrastructure is necessary to support most private sector production: electricity, water, communications, and certain transportation modes, such as roads. These are necessary supply-side inputs to business operations, though the need for such infrastructure varies widely by firm. Without this infrastructure, rural communities could not grow and compete for new jobs, and firms would be unable to expand.

Second, the presence of a minimal infrastructure is necessary to development, although it may not be sufficient to guarantee further economic development if other determinants of development are not in place. Knowledge of whether infrastructure beyond a minimum level will increase development is the key for judging whether investments in new infrastructure should be used as a development tool.

There is some evidence that new infrastructure investments have a greater effect on the ability of business firms to produce in areas with little infrastructure. Eberts (11) finds that the additional value added per unit of public capital has declined over the past 20 years, perhaps providing evidence that the basic infrastructure is important to development and additional investments will be of diminishing importance. Eberts' (11) finding that public investments initiated growth in older U.S. cities, but not in newer ones also may indicate that a basic infrastructure stimulates development but that additional improvements are less productive. Further, Hulten and Schwab (26) conclude that the migration of labor and private capital have been the cause of stronger regional economic growth in the South, and not infrastructure deterioration in the North. However, the existing evidence is tangential and not persuasive, and in any event, is concentrated on broad regions and urban areas, so it fails to provide adequate counsel on the effects of rural infrastructure.

Third, there is no formula for ensuring that a particular location will develop and, corresponding to this, there is no precisely defined set of infrastructure that every community needs in order to develop. An improvement in any factor (such as infrastructure) which has the potential to enhance business location decisions, expansion of existing firms, or startup of new firms can increase only the probability of development. No one infrastructure investment can guarantee development.

Next, additional infrastructure investments increase the probability of development in some places more than in others. Rural communities with other characteristics necessary for development (such as an appropriate labor force), but which have a shortage of public infrastructure have the best prospects for increased economic activity from new infrastructure. The attraction of infrastructure is likely to vary by industry, both in terms of the infrastructure categories needed and the relative importance of infrastructure in the firm's investment and production decisions.

Insufficient infrastructure is unlikely to be a constraint on growth in places that have few other prerequisites to growth, such as an unskilled labor force, inadequate raw materials, and long distances to markets. Thus, in these areas the chances are small that growth can be stimulated by adding infrastructure, even if the current infrastructure is inadequate. New infrastructure will be used only by residents rather than by new firms in these instances. The local quality of life would be raised by the infrastructure, but with little effect on relative incomes.

Adding new infrastructure is unlikely to stimulate development in places that already have excess capacity of infrastructure, even if some other characteristics necessary for development appear to be in place. In these cases infrastructure is not a bottleneck limiting growth.

Infrastructure will increase employment in rural communities where it stimulates development, in that labor and public capital are complements (10, p. 18). On the other hand new public infrastructure could replace some of the investments that individual firms would otherwise make with their own resources. Nonetheless, an improvement in the local infrastructure may increase the total level of economic activity as more firms locate in the community and existing firms expand. Output in the local community will also rise with public-sector investments, although private investment seems to produce more output per dollar invested than public capital (10, p. 16). The most probable reason is that public investment is used for both consumption and production purposes. For example, both consumers and business firms use the road system, whereas private capital is oriented only to production.

Transportation Offers Good Potential

The economics literature tells little about which types of infrastructure stimulate development most effectively. There are wide differences across industries in the level of infrastructure they use and the types they need. Firms and industries also vary considerably as to what is important to their location decisions. Efforts to expand the capacity and types of local infrastructure in hopes of attracting firms or increasing the output of existing firms are thus likely to affect a limited number of firms, at best. Also, the infrastructure and its operation must be financed, and higher costs arising from providing unneeded infrastructure may be a greater negative in attracting business to many communities than the positive effects of having excess capacity in the infrastructure.

Transportation infrastructure improvements appear to have the greatest potential for encouraging economic development, since most development is directly linked to access to resources and outside markets. Transportation services enhance development by reducing the costs for firms to obtain resources and deliver their products to market. They also can make workers more productive by facilitating movement to work.

These were described earlier as supply-side linkages. Improvements in quality of life because of improved mobility stimulate development through the demand side. Further, highway infrastructure and, to a more limited extent, that for other transportation modes are more likely to be regarded as a free good for firms because the financing will be provided from the Federal or State governments.[10] In fact, the need to link local transportation infrastructure with that for other places demonstrates the reliance on higher levels of government for delivery of transportation services.

The costs of improving development probabilities by building highway infrastructure to many currently underserved rural areas must be weighed against the potential benefits. Transportation improvements by themselves cannot create a comparative advantage where none exists. By improving the movement of both inputs and outputs, transportation infrastructure allows other economic factors to become more important in determining where production will occur; that is, improved transportation partially levels the playing field for communities. Transportation factors include time and distance from the market, which are functions of the firm's geographical location; this cannot be overcome entirely by infrastructure. The costs of shipping goods from more remote places remain higher, even with better highways.

---

[10] Local firms also pay taxes to the Federal and State Governments, but they will only pay a very small percentage of the cost for any specific infrastructure investment.

Anecdotal evidence on recent plant locations, such as the Saturn and Nissan decisions in Tennessee, support the notion that transportation issues are imperative in such decisions (16). The geographic location in the country and the proximity to interstate highways seemed to be very important factors, though in both of these cases it was necessary to expand existing routes (or build new ones) to interstate highways after the location decisions were made. But transportation was only one of many site selection considerations of these firms. Other factors were also prerequisites. Adequate water and sewer services are examples of other infrastructure-related prerequisites, though there was no requirement that sufficient infrastructure be in place before the decisions. The firms were willing to agree that water and sewer systems could be expanded later as long as the services could be delivered when they were needed.

A survey of high-technology manufacturing firms (28) led to the finding that transportation was regarded as significant or very significant in the choice of the region in which to locate by nearly 60 percent of the responding firms. This was the sixth highest percentage on a list of 12 location factors, though only three of the factors were regarded as significant by noticeably more firms. When asked about determinants of the final site decision, good transportation for people was ranked fifth (out of 14 factors) and good transportation for materials and products was ranked ninth. No other economic overhead capital was ranked higher, as water supply and waste treatment were thirteenth and fourteenth, respectively. Proximity to recreational facilities was eighth.

Service Industry Infrastructure Needs

Research to date has focused on the relationship between manufacturing and infrastructure. But much of the recent growth in the private sector has taken place in the service industries, not manufacturing. The role of infrastructure must therefore be examined relative to a new set of industries. Rural communities may have an increased chance for economic development because the move to an information age will allow more dispersed activity. On the other hand, concerns about attracting skilled people to rural areas and the need for quality infrastructure and specialized equipment may make it more difficult to attract business.

The trend toward service industries should not be overemphasized, as it reflects the average performance of geographic places and manufacturing industries. Some manufacturing industries continue to expand and many rural areas continue to experience manufacturing growth. Total manufacturing employment in all rural counties in Tennessee, for example, increased between 1980 and 1985, while urban Tennessee counties on average saw decline (17, p. 31). Several of the rural counties had manufacturing employment growth of over 30 percent.

A recent survey of factors involved in the location decisions of new, relocating, and expanding firms concluded that service-related firms are more concerned about access to new or existing markets than are manufacturing firms (18). This emphasizes the need for good road and air transportation, but also stresses the importance of proximity to market. The most remote rural communities, which traditionally have had a difficult time developing, are likely to find it increasingly hard to compete for development opportunities as the focus shifts to service firms. Thus, there is no current note of optimism for these communities. Rural communities near large urban centers will probably continue to experience greater development.

Access to inputs and markets can also depend on the quality of telecommunications services. For firms involved in sharing data, for example, inconsistent telephone service can create access problems. A survey in Washington State found that rural areas are "much more likely to have party lines and to lack touch tone and other advanced telephone services..." (8, p. 19). Some evidence of greater problems with quality of connections and busy signals was also reported. Poor maintenance staffs and antiquated switching equipment may cause these problems for rural areas. Improved quality and diversity of telecommunications is essential if rural areas are to attract service firms. Telecommunications services, like transportation, have their effect on development through the supply-side, as they directly enter firms' production activities. Telecommunications is less likely to be a free good than is transportation, but as with transportation, local areas must have good linkage to the global telecommunications system.

The quality of services delivered is also an important consideration for other types of infrastructure. The quality of electricity service, for example, may be at least as important as its availability. Variation in voltage creates operational difficulties for firms using computerized machine tools and computers. This may affect not only service firms but also manufacturing firms as they increasingly use equipment at least partially controlled through microchips. In rural communities, voltage drops can occur because of other high, variable load demands such as might be caused by a welding shop. Inadequate distribution equipment may also contribute to the problem. Rural distributors are often poorly capitalized and therefore more likely to suffer from distribution problems.

Certain service and high-technology firms, like certain manufacturing concerns, will have unique public service needs. Some will generate effluents requiring special sewage treatment. Others may need specialized human capital training, such as nearby universities with graduate engineering programs. Firms may also have special needs for services provided by the private sector, such as those requiring machine tool operators.

Some rural communities may be considering high-technology infrastructure such as satellite hookups as a way to attract new innovative firms. The number of firms needing these facilities is likely to be small, however, and concentrated in a limited number of industries. Few service firms are seeking high-technology infrastructure (18). More likely prerequisites will be improved quality for more traditional infrastructure services, such as telephone and electricity.

Anecdotal evidence indicates that airport service is particularly important for headquarters locations. Construction of or improvements to airport facilities increases the ability to use private air service but is unlikely to improve weak commercial service. This means that rural areas located far from a good urban airport will find it difficult to attract headquarters that rely on commercial service. A better chance will continue to exist for attracting headquarter locations of firms which rely on private aircraft, but rural areas can generally compete only for the headquarters of smaller firms.

The Federal Government's Role in Infrastructure Development

The Federal Government supports infrastructure development directly through expenditures, grants, loans, and loan guarantees, and indirectly through tax deductibility and tax-exempt debt. The Federal Government can also increase necessary infrastructure investments through regulation, such as on the treatment of wastewater.

State and local governments accounted for 85.4 percent of public capital outlays in 1984 (13, p. 24).11/ The share has varied since 1960, but stayed consistently between 80 and 90 percent. Expenditure trends are reported at the level of government responsible for spending, not the one raising the funds. Since the Federal Government has often financed infrastructure provided by State and local governments, the Federal role has been much greater in terms of raising revenues. For example, the Federal Government is traditionally a large generator of revenues for highway construction, but State and local governments have generally spent those revenues.

Direct Federal spending amounted to only 14.6 percent of total capital purchases in 1984. Programs run through the U.S. Army Corps of Engineers and the Bureau of Reclamation are examples of direct Federal expenditures for infrastructure. The Federal and State and local governments often share the cost when direct Federal expenditures are involved, but direct Federal expenditures are diminishing relative to those made by State and local governments (33).

No combined accounting is available to determine what financing sources were used by State and local governments for infrastructure, but efforts have been made to identify the sources. Federal

---

11/ Both economic and social overhead infrastructure purchases are included here.

grants-in-aid financed approximately 40 percent of State and local government capital purchases in 1984 (2, p. 26). Debt also appeared to be the initial financing source for about 40 percent of State and local government capital purchases in 1984 (2, p. 27). The remainder was provided from other sources, such as taxes and user charges. State governments also finance grants-in-aid to local governments for infrastructure purchases. These grants totaled $7.5 billion in 1982, with 86 percent for transportation, and 72 percent for bridges alone (33, p. 64). However, these data do not include the transfer of State-shared taxes and other block grants, some portion of which is also used to finance local infrastructure.

Federal grants to State and local governments for financing infrastructure totaled $26.4 billion in 1986 (33, p. 57), 9 percent less in 1982 dollars than the peak funding level of 1978. All but $8.7 billion of the Federal aid went for transportation. The National Council on Public Works Improvement concluded, "It is quite clear from these figures that, except for transportation, the Federal Government is steadily reducing the relative importance of its public works grant-in-aid programs" (33).

Federal loan obligations for nondefense public works were estimated at $3.2 billion in 1986, approximately $200 million below 1985. Federal loans accounted for 7 percent of total Federal public works funding. The Rural Electrification and Telephone program is responsible for more than two-thirds of the Federal loan obligations. Federally guaranteed loans have declined dramatically in recent years, from $11.8 billion in 1982 to $96 million in 1986. The Rural Electrification Administration, Rural Development Insurance Fund, and Tennessee Valley Authority accounted for almost all of the loan guarantees in 1982.

Federal Government assistance for State and local government capital purchases also arises indirectly. The deductibility of certain State and local government taxes from income subject to the Federal income tax lowers the Federal tax burden on taxpayers who pay for State and local government delivery of services, including those who use infrastructure. Similarly, deductibility of interest earned on State and local government debt reduces borrowing costs. These Federal Government subsidies to infrastructure change the after tax cost of delivering the services, but do not reduce the physical resources necessary to produce them.

Federal assistance is provided for several reasons. First, Federal assistance is appropriate because the benefits of some infrastructure, interstate highways for example, accrue to people who live in several States. In the absence of Federal funding, these services would be underprovided. Second, Federal funding is given on an equity basis to ensure that certain services are available to all people and areas, even if the service cannot be financed by the recipients. The equity argument also may be that the most cost-effective means to increase incomes in less-developed places is to provide an infrastructure conducive to development. Third, Federal transfers have been justified because the Federal Government has a better revenue-raising capacity than local governments have, both because of the choice of tax instruments used and because the Federal Government can collect tax revenues in a more cost-effective means. Justifying Federal assistance based on a greater ability to tax is difficult, however.

Conclusions about the degree to which infrastructure stimulates development have implications about the effectiveness of Federal Government transfers. First, it was stated above that transportation programs have a significant effect on development patterns. Since highway programs received the bulk of Federal grant funds in 1986, and recent reductions in Federal funds have been oriented toward non-highway programs, much Federal aid has the potential to stimulate development of specific rural areas. However, without examining the distribution of actual highway aid and how it is correlated with need for roads, it is impossible to measure the effectiveness of Federal assistance in stimulating development.

Federal direct loans for telecommunications provided through Rural Electrification and Telephone in the Commodity Credit Corporation were much higher in 1986 than in 1982, though lower than in 1985 (33, p. 60). There has been a significant decline in loan guarantees through the Rural Electrification Administration in recent years. The importance of increasing the quality of telecommunications and other infrastructure suggests that a greater, rather than a lesser Federal Government role in support of these infrastructure types may be appropriate.

Another conclusion is that infrastructure projects will be most effective in stimulating development if they are oriented toward areas that lack infrastructure but have other characteristics needed for development. Lagging areas would not be stimulated even with new infrastructure, and human resource development programs are likely to be more effective for stimulating development. Thus, Federal programs are likely to be less effective if they have broad eligibility criteria. The funds should be targeted to places with the greatest potential for development rather than those with the greatest need as measured by low income or low levels of existing infrastructure. There is no evidence on whether Federal programs are targeted to places with shortfalls of infrastructure or where the potential for development is the highest. Careful study of specific Federal aid programs would be necessary to determine how well they are targeted to such areas.

Public Infrastructure Needs, 1987-97

Infrastructure will remain an important input in the production process for business firms, along with labor, capital, energy, and other inputs. Specific needs will vary by firm, but most firms will still need a certain level of traditional infrastructure, such as roads, electricity, and telecommunications. However, there is a growing need to improve the diversity and quality of infrastructure services. Few firms will require specialized high-technology infrastructure; most rural communities will find it difficult to attract those that do, because high-technology infrastructure (such as satellite uplinks) in rural areas is seldom cost effective.

Techniques used to measure the aggregate investment needs for infrastructure have generally been unreliable (13, p. 40; 33, p. 12). They are usually based on engineering designs for delivering services across the country without considering how people's demands change when they are confronted with paying for a service. Alternative technologies for delivering services are frequently overlooked. Focus has generally been on the construction of infrastructure without examining the life cycle costs of a new facility, and how these will be financed. Further, as noted above, public infrastructure must usually be delivered to where the users are located. Thus, need is a very localized issue, and not something that can be estimated on an aggregate basis without summing needs for individual communities. This also means that adequacy of infrastructure ought to be evaluated as a dynamic issue, depending on where people and businesses chose to locate. It is possible that enough infrastructure exists to service all users, but not in the places where users are located, thereby making it insufficient. As a result of these factors, "needs studies" are likely to overstate the new infrastructure investments necessary, and they may not accurately reveal where the infrastructure should be improved.

In the future, infrastructure needs should be evaluated through examination of individual communities. The analysis should be dynamic rather than static, based on consideration of structural changes in the economy and trends in the location of people and business. Needs should follow from a consideration of the benefits and costs, considering alternative technologies. Decisions on Federal or State financial support for locally provided infrastructure should be based on potential for development as well as on such issues as the desire to improve quality of life. Since these needs cannot be determined from aggregate data, actual needs cannot be specified here. However, even a massive Federal program to finance infrastructure expenditures probably would fail to stimulate development in many rural places. Thus, Federal support will be much more cost effective if it can be targeted to places with the greatest potential for development.

The costs of needed infrastructure improvements are certain to be large; reasons for the Federal and State governments to remain active in financing these services were described above. The potential for the private sector to finance infrastructure must also be continually evaluated. Even when the infrastructure has traditionally been provided through the public sector, it is sometimes possible to divide the roles of service delivery such that the private sector can be an active participant.

References

1. Apogee Research, Inc. Trends in Public Works Expenditures, 1960-1984. Final Report to the National Council on Public Works Improvement, Washington, DC, 1986.

2. ________. Trends in Financing Public Works, 1960-1984. Final Report to the National Council on Public Works Improvement, Washington, DC, 1986.

3. Bartels, Cornelius P. A., William R. Nicol, and Jacob J. van Duijin. "Estimating the Impact of Regional Policy, A Review of Applied Research Methods," Regional Science and Urban Economics, vol. XII, 1982, pp. 3-41.

4. Bourque, Philip J. "The Infrastructure Gap," Growth and Change, Jan. 1985, pp. 17-23.

5. Burns, Leland S. "Metropolitan Growth in Transition," Journal of Urban Economics, vol. XI, 1982, pp. 112-129.

6. Conley, Dennis M., and Earl O. Heady. "The Interregional Impacts of Improved Truck Transportation on Farm Income from Rice in Thailand," The Journal of Developing Areas, vol. XV, July 1981, pp. 549-560.

7. Dillman, Don A., and Donald M. Beck. "The Past is Not the Future: Urban Quality of Life as We Approach the 21st Century," Urban Resources, vol. III, Spring 1986, pp. 43-47.

8. Dillman, Don A., Lesli P. Scott, and John Allen. "Telecommunications in Washington: A Statewide Survey." Social and Economic Sciences Research Center, Washington State University, Jan. 1987.

9. ________. An Assessment of the Linkage Between Public Infrastructure and Economic Development. Final Report to the National Council on Public Works Improvement, University of Oregon, Oct. 1986.

10. Eberts, Randall W. "Estimating the Contribution of Urban Public Infrastructure to Regional Growth," Working Paper 8610. Federal Reserve Bank of Cleveland, Dec. 1986.

11. ________. "The Role of Public Investment in Regional Economic Development." Paper presented at the Association for Public Policy Analysis and Management, Washington, DC, October 15, 1985.

12. Fiedorowicz, Kazimierz. "Planning of the Economic Infrastructure," (translated by Gene Rzepka), Eastern European Economics, Fall 1977, pp. 48-73.

13. ________. *Expenditures for Public Works Infrastructure*. Report to the National Council on Public Works Improvement, University of Tennessee, Knoxville, Tennessee, October 15, 1986.

14. Fox, William F. *Revenue Sources for Public Works Infrastructure*. Report to the National Council on Public Works Improvement, University of Tennessee, October 15, 1986.

15. ________. *Size Economies in Local Government Services: A Review*. Rural Development Research Report No. 22. Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, Aug. 1980.

16. ________, and C. Warren Neel. "Saturn: The Tennessee Lessons," *Forum for Applied Research and Public Policy*, vol. II, Spring 1987, pp. 7-16.

17. ________, and Patricia A. Price. *An Economic Report to the Governor of the State of Tennessee*. Center for Business and Economic Research, University of Tennessee, Nov. 1986.

18. ________, and Betty B. Vickers. *Business Location Determinants in Tennessee, An Update*. University of Tennessee, 1987.

19. Gaiha, Raghav. "Poverty, Technology and Infrastructure in Rural India," *Cambridge Journal of Economics*, vol. IX, 1985, pp. 221-243.

20. Gordon, John, and David Mulkey. "Income Multipliers for Community Impact Analyses--What Size is Reasonable?" *Journal of Community Development Society of America*, vol. IX, Fall 1978, pp. 85-93.

21. Hansen, Niles M. "Unbalanced Growth and Regional Development," *Western Economic Journal*, vol. IV, Fall 1965, pp. 3-14.

22. ________. "The Structure and Determinants of Local Public Investment Expenditures," *Review of Economics and Statistics*, vol. XLVII, May 1965, pp. 150-162.

23. Haveman, Robert H. "Evaluating the Impact of Public Policies on Regional Welfare," *Regional Studies*, vol. X, 1976, pp. 449-463.

24. Helms, L. Jay. "The Effect of State and Local Taxes on Economic Growth: A Time Series--Cross Section Approach," *Review of Economics and Statistics*, vol. LXVII, Nov. 1985, pp. 574-582.

25. Holbik, Karel. "The Public Sector and Capital Formation in Developing Countries in the 1970's," *Rivista Internazionale Di Scienze Economiche E Commeriali*, vol. XXIX, Apr. 1982, pp. 289-309.

26. Hulten, Charles R., and Robert M. Schwab. "Regional Productivity Growth in U.S. Manufacturing: 1951-78," *The American Economic Review*, vol. LXXIV, Mar. 1984, pp. 152-162.

27. Kheinman, S. A. "The Social Division of Labor and the Infrastructure," *Problems of Economics*, vol. XXV, March 1982, pp. 36-49.

28. Joint Economic Committee, Congress of the United States. *Location of High Technology Firms and Regional Economic Development.* Washington, DC: U.S. Government Printing Office, 1982.

29. Liew, Chong K., and Chung J. Liew. "Measuring the Development Impact of a Transportation System: A Simplified Approach," *Journal of Regional Science*, vol. XXV, 1985, pp. 241-257.

30. Looney, Robert, and Peter Frederiksen. "The Regional Impact of Infrastructure Investment in Mexico," *Regional Studies*, vol. XV, 1981, pp. 285-296.

31. McGuire, Therese J. *On the Relationship Between Infrastructure Investment and Economic Development*. Final Report to the National Council on Public Works Improvement, State University of New York at Stony Brook, October 15, 1986.

32. Murrell, Peter. "The Comparative Structure of Growth in the Major Developed Capitalist Nations," *Southern Economic Journal*, vol. XLVIII, Apr. 1982, pp. 985-995.

33. *The Nation's Public Works: Defining the Issues*, Report to the President and Congress, National Council on Public Works Improvements, Washington, DC: National Council on Public Works Improvements, 1986.

34. Richardson, Harry W. "National Urban Development Strategies in Developing Countries," *Urban Studies*, vol. XVIII, 1981, pp. 267-283.

35. Santini, Danilo J. "An Econometric Model of Transportation Infrastructure as a Determinant of Intraurban Location," *Journal of Regional Science*, vol. XVIII, 1978, pp. 73-85.

36. Stefani, Giogio. "Public Services and Infrastructures in the Development of Japanese Urban Economy," *Rivista Internazionale Di Scienze Economiche E Commeriali*, vol. XXV, Aug.-Sept. 1978, pp. 796-815.

37. Tarrant, John. "Rural Transport and Development in Bangladesh," *Bangladesh Development Studies*, vol. VII, Autumn 1979, pp. 109-120.

38. *Governmental Finances in 1984-85*, GF85. U.S. Department of Commerce, Bureau of the Census, 1985.

39. Vitebskii, R. "Regional Differences in Expenditures on the Infrastructure," *Problems of Economics*, vol. XXII, Mar. 1979, pp. 40-57.

Table 1--Economic development and infrastructure linkages

Effect on economic development	Direction of casuality
Supply side:	
Infrastructure makes other inputs more productive	Infrastructure generates income
Infrastructure services are direct inputs in production	Infrastructure generates income
Demand side:	
Expenditures are made to construct and operate infrastructure	Infrastructure generates income
Higher incomes or expanding production cause more infrastructure to be demanded	Income generates infrastructure
Redistribution of economic activity	Infrastructure generates income in some places, but reduces it in others

CHAPTER 14

FINANCIAL AID PROGRAMS AS A COMPONENT OF ECONOMIC DEVELOPMENT STRATEGY

Daniel L. Milkove and Patrick J. Sullivan

Abstract. Government intervention in private decisionmaking may be justified if something causes markets to allocate resources inefficiently, or if society decides that market outcomes lead to an unfair income distribution. Financial assistance to rural businesses is one option available to the Federal Government to cope with these problems. Government loan guarantees and federally sponsored secondary market institutions can address financial market inefficiencies where the Government has better information than do private lenders concerning the creditworthiness of prospective borrowers. Direct Government payments, loans, or equity participation may help direct funds to the intended beneficiaries when income redistribution is the primary goal.

Rural America is in the midst of a painful economic adjustment. Industries based on farms and natural resource-based industries continue to experience severe financial stress. And, the manufacturing and service industries that grew so rapidly in rural areas during the 1970's have been slow to rebound from the latest economic recession. As a result, employment growth rates in rural America have averaged less than a third of those experienced by urban centers during the 1980's, and rural unemployment and poverty rates remain significantly higher than those of urban America. In response to these conditions, policymakers are examining the current and potential role of Federal Government programs as components of a rural development strategy.

Expanding Federal financial assistance to privately owned firms is one option available to policymakers to cope with troubled economic conditions in rural America. While government intervention in private market operations is not without its costs, properly designed Federal financial assistance programs can play a role in promoting rural development. Programs can be designed to improve the efficiency of rural markets or to subsidize rural firms to encourage continued job opportunities in rural communities. The goal of Federal involvement, political constraints on program design, the operation of existing Federal, State, and local government programs, and the structure and operation of the private financial markets faced by rural businesses will help determine the best package of Federal financial assistance programs for furthering rural development.

Daniel Milkove and Patrick Sullivan are economists with the Agriculture and Rural Economy Division, ERS.

Economic Rationale for Government Assistance

Decisions made by many private individuals and firms produce better results than those that could be achieved by the Government alone. That is a basic premise of our market economy. But under certain circumstances, it makes sense for the Government to intervene in the decisionmaking process. Useful information may be too difficult and costly for small firms to gather, or important items may be ignored, say because the private enterprise system does not place prices on some factors, such as pollution associated with the production process. Apart from these somewhat technical issues, society may simply determine that market outcomes are not fair in some sense and use Government programs to redirect resources toward favored segments of the population. Federal programs that assist rural businesses attempt to serve two basic economic goals: improving the efficiency of private sector markets, and distributing employment opportunities more equitably than would occur under a *laissez-faire* policy. 1/

Many of the Federal programs providing financial assistance to businesses, particularly nonfarm businesses, are in the form of credit programs. Thus, it is useful to distinguish credit market efficiency concerns from other types of market failures as a rationale for Federal intervention.

Correcting Financial Market Inefficiencies

Efficient capital markets transfer available funds from investors to those borrowers who can most productively use the money. Since matching savers and borrowers involves costs, financial intermediaries (such as banks) developed to minimize these transaction costs. However, if transaction costs vary systematically from community to community, then the financial market may not

---

1/ Efficiency and equity are the key concepts of positive and normative economics, respectively. Moving from an inefficient to an efficient distribution of resources is almost always desirable from society's point of view; more of one good can be produced without lowering the output level of another good. Equity is a more difficult notion, in that society chooses to modify the distribution of income that would result from the efficient operation of an entirely private economy. Equity goals typically call for transferring income from wealthy individuals, firms, or regions to those less well-off. The equity dilemma ideally would come down to a choice from among many possible efficient outcomes for the economy. But in practice, matters are not so precise and policies designed to promote equity may introduce inefficiency. For example, total employment might be maximized by encouraging people to migrate to urbanized areas, while equity considerations dictate assistance to maintain certain employment levels in all regions of the country. Equity has a second, completely different meaning that will appear quite often in this chapter. Used in conjunction with terms such as capital or participation, equity refers to ownership in an investment sense. For example, a business that needs funds to expand can either raise equity capital by selling shares of stock, or debt capital by borrowing from a bank. The intended meaning of equity should be clear from the context of its use.

correctly allocate credit. Imperfect information (loan officers in a large city may lack knowledge concerning the rural applicant, proposed venture, or local market that is critical to making an informed decision) and government regulations (legally prescribed interest rate ceilings) are examples of factors that can interfere with the efficient operation of financial markets. Market inefficiencies that produce results such as rejected applications for creditworthy enterprises, loan terms that diminish the probability of business success, and inadequate investment in certain industries, firms, or communities could justify Government intervention, but only if benefits exceed costs.

The Government might respond to inefficient markets by making direct loans to firms missed by the private sector. However, since the Government is likely inferior to private financial institutions in evaluating loan applications, inefficiency is better attacked by going after the causes. For example, federally sponsored financial intermediaries support secondary mortgage markets by standardizing some loan terms and pooling similar mortgage loans. Reducing transaction costs is an important element in the success of these markets; individual investors view securitized loans as being fairly homogeneous, thus reducing the time and expense of evaluating risk.

Correcting Noncredit-Market Failures

Externalities (costs or benefits not captured in the price of a good) within the production and consumption process lead to inefficient market decisions because not all of society's costs and benefits are taken into account by the decisionmakers. Pollution is an example of a societal cost not reflected in the market price of the good being produced. As a result, private market decisions create a situation objectionable to society. The government is encouraged to intervene through environmental regulations and financial assistance for pollution control equipment to achieve a level of environmental quality that society deems desirable.

In addition to pollution, other nonreimbursable costs and benefits can arise during the production process, some of which are discussed in Appendix A. Since individual firms are not directly reimbursed for the external benefits they may provide, or charged for the external costs they may incur, governmental intervention may be desirable in some instances to convince firms to operate at the levels or locations desired by society.

Maintaining Interregional Equity

Location-specific assistance to businesses may be justified on equity grounds. Certain regions (Appalachia, rural America in general) have traditionally had slower growth rates and lower standards of living than have other parts of the country. If society believes that these regions deserve greater shares of the Nation's wealth, an argument can be made in favor of Government programs that increase employment opportunities through subsidies to rural businesses. The equity argument is fundamentally different from discussions based on market inefficiencies. Assistance programs based on efficiency considerations address root causes of regional economic growth problems under the assumption that these regions can develop on their own given a fair chance. But, programs based on equity do not assume that regional problems can be corrected; they are meant to alleviate the symptoms. Thus, rural firms could be subsidized to encourage their continued operation even though it might be more efficient to move everyone to a city.

Rural Finance System

Federal policies designed to meet the financial needs of rural businesses should take into account the nature of the financial system serving these businesses. The rural financial system comprises thousands of local providers of capital and financial services, spread out over the thousands of local financial systems serving rural America.

There is no such thing as a "rural financial market" in the sense of a unified market serving the credit needs of rural America. Financial markets can be divided into national, regional, and local markets, with distinctions based on the geographic dispersion of market participants. Each level of financial market serves certain types of rural businesses. Rural branch plants of major corporations can access regional and national capital markets through their parent companies, but small independent businesses are often confined to local capital sources. And the sources of capital available to rural businesses will vary according to a firm's age, size, and ownership structure, its line of business, the size of the markets in which it operates, and the purpose for which funds are being raised.

Rural Capital Needs

There are two basic types of financial capital: equity capital (conveying ownership of business assets) and debt capital (borrowed funds). The distinction between the two is not always clear since funds are interchangeable. Owner equity might be obtained by borrowing from relatives or by mortgaging a house. The loans are personal in nature, without a direct link to the business. Venture capitalists sometimes provide funds in the form of convertible debt; if the firm is successful, the lender has the option of converting the loan into equity.

While adequacy of local capital markets is often gauged in terms of the cost and availability of credit (debt capital), a business needs equity funding to get off the drawing board. Equity capital, representing ownership of the business assets, is used initially to purchase equipment and to pay operating expenses (rent, wages, utilities, raw materials, products for resale, and advertising) before receipts catch up with expenditures. Equity funding is long-lasting capital, generally with no predetermined payoff requirements attached. Of course, the equity providers, whether owner-managers or outside investors, wish ultimately to receive returns on their investments. But equity capital may place the firm in a stronger position to make decisions based on longrun considerations.

Once the business has satisfactory cash flow, the owner(s) can borrow from banks or other lenders to finance ongoing operations. Operating loans are generally designed to be self-supporting, making it possible for the business to sell products or services which generate the revenue needed to repay the loan. A common loan finances a firm's inventory, which may serve both as the collateral securing the loan and, upon eventual sale, the source of loan payments. Unlike equity capital, debt capital implies no claim of ownership. Repayment generally follows a predetermined schedule that includes an interest component to reimburse the lender for the use of funds.

A firm planning to expand the scale of its operations by purchasing new machines, building a larger factory, or training a larger workforce may have a choice between equity and debt capital to finance growth. Additional equity could come from internally generated retained earnings, if the owners have the patience to trade current dividends for future earnings, or through external sources. Retained earnings are a cheap source of capital but may not be sufficient. An infusion of equity from outside the firm makes possible greater and faster expansion, often at less cost than debt capital in terms of cash flow (dividend levels can be modified, but interest payments are fixed). The major drawback is that the owner and other original investors have their shares diluted (unless they are the ones providing more equity), giving up claims over a portion of longrun profits and possibly losing control of the company. Debt maintains owner control and leverages existing equity, but prudent management and lender restrictions limit the amount of debt that can be incurred.

Sources of Capital

Budding entrepreneurs must usually provide much, if not all, of the equity capital needed to start a business. A survey of 134 new, small firms in Wisconsin showed that the entrepreneurs' own money was the only source of beginning financing for 74 percent of the sole proprietors, 60 percent of the partners, and 48 percent of the stockholders surveyed. In other instances, owners also used personal loans at banks (such as a second mortgage on the owner's residence), or borrowed funds from the previous owner, insurance policies, or relatives to increase equity in the business (3).[2] Venture capital is probably less formal in rural areas, with local investors individually providing funds rather than through organized venture capital funds. Venture capital funds invested around $3 billion in 1983, with much of this going to new or young firms. But, only about 1,000 firms received this sort of financing (11).

Corporations holding less than $10 million in assets had an average of 2.2 percent of their purchased assets financed by external capital (table 1). A larger share came from shareholders' loans and retained earnings, but depreciation was the largest individual source of equity capital listed in table 1. The table indicates that small businesses are successful at obtaining debt capital, with three categories of debt (trade, other short-term, and other long-term debt) together almost equaling depreciation.

Input suppliers are frequently a major source of short-term debt capital. Supplier or dealer credit gives small businesses time to sell sufficient products to pay for needed materials, a fairly low-cost method of financing small-sized input inventories. Loans from banks and other sources serve different purposes that are often related to the maturity or size of the loan.

---

[2] Underscored numbers in parentheses refer to sources listed in the References section at the end of the chapter.

Unlike the banking systems of many countries, American banks do not make direct equity investments. Instead, the banks' main role is providing businesses debt capital in the form of short- and medium-term loans. Short-term loans provide working capital to cover a firm's normal operating expenses when monthly or seasonal variations in receipts leave a business temporarily short of funds. In some cases, a short-term loan serves as a temporary substitute for long-term financing (say, if interest rates are expected to fall significantly in the next year). Medium-term credit finances leases (for buildings and equipment) and equipment purchases. Real estate and other long-term loans cover major purchases, such as land, buildings, equipment, or the business itself (when the former owner sells out).

Since small banks are believed to make the majority of small business loans, the small size of many rural banks should not in itself give rural businesses trouble in obtaining bank loans. The quarterly "reports of condition" filed by all banks show that rural banks place smaller proportions of their loan portfolios in the form of commercial loans than do urban banks. But any perception from this data that rural banks are not doing their part is removed when agricultural loans are added to commercial loans. Rural banks make a higher percentage of their loans in this combined "business loan" category (table 2). Many rural businesses have access to funds from larger financial institutions within their local banking market. About 40 percent of rural counties are served by a branch or holding company affiliate of a banking organization with above $500 million in assets (9).

Although the commercial bank is the dominant financial institution in most rural capital markets, it is not the only source of loans in rural communities. Savings and loan associations (S&L's) generally have statewide branching authority and can make consumer and commercial loans. The Farm Credit System (FCS) and the Farmer Home Administration (FmHA) are important lenders to the agricultural sector. Despite of their well-publicized financial difficulties, they still have billions of dollars in outstanding loans. Because funds for these loans come from national financial markets, local deposits at banks are left free to support other activities. Other institutions, such as finance and insurance companies, are generally less active in rural areas.

Does the Financial System Work for Rural Business?

Limited evidence suggests that the current financial system works reasonably well in rural America. Surveys of rural firms indicate that their owners are generally satisfied with the performance of their primary financial institution (3, 4). However, data are available only for firms open for business at the time of the survey. Had prospective owners of ventures that closed or that failed to start due to lack of financing been interviewed, they might have expressed a different opinion.

A few exceptions to the apparently efficient functioning of rural financial markets can be found. Certain types of capital (start-up capital) are likely to be scarce no matter where a business locates, and some industries may not be well served by rural financial markets. While rural banks may be able to guage accurately local market conditions, they are less well suited to guage the economic viability of firms serving national or international markets. And, loan officers accustomed to making agricultural loans may not evaluate other types of commercial loan applications with the same precision as loan officers at urban banks who routinely make commercial loans. While there is ample room for information-based problems, the fact that job growth is slow in rural areas does not necessarily imply that a problem exists with the rural financial market. The efficiency of the financial system needs to be judged on credit market efficiency criteria, not on whether the market provides an equitable distribution of capital, or whether it corrects for externalities and other noncredit market failures. A failure to make loans is a rural financial market failure only if private financial institutions should be able to profitably provide capital to rural borrowers, but for some reason do not.

Can banks continue to meet the debt capital needs of rural businesses as the rural economy changes? Yes, rural financial markets will continue to do a good job for existing customers and familiar types of rural businesses. Yet, the answer is less clearcut for cases where a new sort of activity is involved. Computers and modern methods of communication and transportation make location less important for many types of economic activities. For example, computer software can be written anywhere. Rural entrepreneurs served by small community banks may find credit difficult to obtain when their product line differs significantly from that familiar to the banks. If rural development proceeds gradually, rural financial markets should be able to continue financing the bulk of rural credit needs without Federal involvement. However, if the development process calls for radically altering the mix of local businesses, the credit delivery system currently operating in many rural communities may have to be altered. And if the financial institutions serving rural communities are asked to provide credit to correct for nonfinancial market efficiency problems or to encourage a more equitable distribution of societal wealth, then some degree of governmental involvement is necessary.

Federal Financial Assistance Programs for Rural Businesses

The Federal Government assists the business community in a number of ways. This paper is concerned with direct financial assistance programs, but it is important to note that financial assistance is also provided by State and local governments via Federal income tax expenditures, and nonfinancial assistance is provided to a wide range of business firms. Various ways the Federal Government helps American businesses, other than through its direct financial assistance programs, are briefly discussed in Appendix B.

Direct Federal assistance has not been a very important source of capital for nonfarm businesses. Direct loans and loan guarantees from the Federal Government amount to less than 5 percent of nonfarm business financing, according to one recent estimate (2). Direct Federal assistance is much more important within the agricultural sector. Direct Government payments amounted to an estimated 46 percent of net farm income in 1986 (12). This section will emphasize the nonfarm business assistance programs administered by the Federal Government.

The Federal Government provides financial assistance to nonfarm businesses through several programs. Table 3 provides funding levels on the major Federal programs which provide financial support, either directly or indirectly, to rural businesses. Only programs available to a wide range of business firms are highlighted in the table. The Small Business Administration (SBA) has the largest presence in the small business area. While the SBA's programs are not tailored to rural development objectives, the importance of small businesses within the rural economy makes the SBA programs important to rural America (10). The SBA's main program guarantees up to 90 percent of loan principal for eligible bank loans to small businesses. Banks may sell the guaranteed portions of loans in the secondary market. Interest rate ceilings for these loans are set by the SBA. The program serves businesses that cannot obtain credit or comparable loan terms on their own; loans guaranteed by the SBA are much more likely to have maturities above 5 years than is the case for other business loans made directly by banks (2). The SBA also makes direct loans, but has greatly reduced its direct lending over the past few years (table 3). In addition to its main program, the SBA has specialized programs for businesses owned by low-income persons, handicapped entrepreneurs, and veterans, and administers special energy and disaster loan programs.

In addition to its individual loan programs, the SBA also assists small businesses through programs that support small business development corporations (SBDC) and small business investment companies (SBIC). The SBDC programs make long-term capital available to emerging small businesses. The SBA lends or guarantees loans to quasi-public corporations which, in turn, purchase real estate and other long-lived capital assets for the use of eligible small businesses. Through its SBIC program, the SBA encourages investors to make equity investments in eligible small businesses. SBIC's are private corporations which use funds borrowed from the SBA to make loans or investments in small businesses (7, 13).

While considerably smaller than they have been in the past, the Federal Government continues to administer loan programs specifically to generate economic development. FmHA's business and industrial loan program (B&I) is similar to the SBA's main individual business program, guaranteeing up to 90 percent of private sector loans to eligible businesses. B&I is targeted at rural areas, but is much smaller than the SBA's presence as a rural lender. Unlike the SBA, the B&I is not targeted toward small firms and, in the past, tended to make fairly large loans (7). The Economic Development Administration also administers a business loan and loan guarantee program to provide financial assistance to businesses in redevelopment areas. Like B&I, its objective is to provide job retention in targeted areas by assisting firms unable to find private capital. The Department of Housing and Urban Development makes direct loans to businesses and other organizations rehabilitating both residential and nonresidential properties within targeted areas as part of their neighborhood revitalization program.

In addition to these direct financial assistance programs, the community development block grant and the urban development action grant programs provide grants to State and local governments which are often used to support private business development. Both programs earmark funds for rural areas. Program funds can be lent to businesses at subsidized rates or used to leverage private credit for desired business development and expansion.

The Federal Government also administers loan programs targeted for specific industries or segments of the economy. Though the programs are large, they are not available to support general business development efforts and will not be described in any detail. The Rural Electrification Administration (REA) makes direct, subsidized loans to rural electric and telephone cooperatives. In 1983, REA'S loan portfolio had a book value of $13.3 billion (2). Through direct loans, loan guarantees, and insurance, the Export-Import Bank (EximBank) tries to increase American exports by subsidizing loans to foreign customers of American firms. Loans often cover expensive items, such as commercial jets, that require longer term financing and for which other exporting governments compete to provide subsidies.

Evaluating Federal Credit Programs

While the economic goals of Federal financial assistance programs--a more efficient and equitable economy--may be laudable, their actual effects on the economy may be far from those intended by the legislation. Federal assistance redirects productive resources. If assistance does not go to the intended target, or if the wrong amount of assistance is delivered, economic inefficiency and a less equitable distribution of income and wealth could result. For example, if programs designed to keep family-sized farms in business result in too many productive resources being devoted to agriculture, society's costs may exceed program benefits. Many analysts believe Government farm programs are at least partly to blame for the current financial crisis in farming.

Measuring the success of Federal credit programs is difficult. Counting the increase in jobs at firms that received loans through the program is not satisfactory because some jobs would have been created in any case. If assisted firms take business away from other companies, part of the job growth is illusory. When the Federal Government provides credit to targeted firms, other potential borrowers pay, either through higher interest rates or through tighter loan requirements (with their associated loan rejections). From society's point of view, governmental action is justified only if the program yields net positive utility (that is, benefits outweigh costs).

When equity goals are being served, evaluation is even more troublesome. What is viewed as an equitable program by some may be viewed as a costly waste of Government resources by others. Programs which assist one's constituents are generally viewed as being more equitable than programs which do not. Public support for programs will be lessened if private lenders feel that the Government is taking business from them, or firms believe that their competitors get an unfair advantage by receiving government assistance. This becomes more likely if not all loans go to firms in the target group, or the target is not well defined. Since most Federal assistance programs were either set up to address several policy objectives or have become multiobjective programs over time, they tend to have broad, ill-defined targets.

The main SBA program illustrates several of these points. It seems to have elements of both efficiency and equity as goals. Loans are intended to go to small businesses missed by the private sector. At least 22 percent of SBA loans would have been made by private lenders in the absence of SBA guarantees concluded a recent study of Federal credit programs (2). Thus, one can argue that the Government was competing with private lenders for the portion of the 22 percent that were made directly (not guaranteed) by SBA. If true, perhaps eligibilty standards need to be tightened by making sure that prospective borrowers are not eligible for affordable credit from private sources before admitting them to the program. High default rates on SBA loans (compared with banks) led the same researchers to conclude that lack of debt capital from private sources is not a problem, since creditworthy borrowers would have lower default rates. This may or may not reflect a weakness in the program. If equity considerations led to deliberately risky loans, high default rates are to be expected and may be acceptable if benefits to society from successful firms exceed the default costs.

Federal Options for Influencing Business Investment

Federal financial support for business has been provided mostly through credit programs and the tax code. With few exceptions, farm programs being the largest, financial support is rarely provided through direct payment programs. The tax code can effectively influence decisions by industries and broad classes of firms. However, for targeted assistance to specific firms or groups of firms, credit programs are often less cumbersome to initiate and are easier to alter as policy objectives change. Nonetheless, credit programs have their drawbacks and are not ideally suited for addressing all types of policy objectives.

Federal credit programs, with the active involvement of private lenders, can adequately address credit market failures because mechanisms can be developed which solve underlying problems. In dealing with financial market inefficiencies, the Federal role should primarily be to act as a facilitator, using loan guarantees to direct funding to firms that would have received private lender financing had the financial market operated efficiently.

For meeting equity goals, or for alleviating problems associated with market failures unrelated to the operation of financial markets, credit programs are, at best, an alternative to direct payment programs. They are popular for several reasons. Credit programs that operate through guarantees on privately placed loans are not immediately reflected in the Federal budget as expenditures; direct payments are. Guaranteed loan programs can look almost cost-free when in fact billions of dollars worth of potential obligations are outstanding.3/ The idea that government will be reimbursed for the assistance it provides makes loan programs, even those with heavily subsidized interest rates, easier to justify to taxpayers and competing firms.

The major drawback with using credit programs to meet equity goals is that the targeted recipient must borrow funds to receive the intended subsidy. This requirement greatly reduces the benefits for some recipients, thereby reducing the effectiveness of the program. Lending programs can result in inefficient investment decisions which needlessly add to societal costs. If business

---

3/Proposed legislation would place credit programs directly in the unified budget by obtaining actual or estimated values for their associated subsidies (1, 2).

assistance programs are to be used to achieve rural development goals, programs need to be designed which minimize these problems while addressing the underlying policy objectives.

Programs to Correct Rural Credit Market Failure

Reducing the transaction costs of lending to rural businesses might aid rural development by encouraging rural financial service providers to finance more creditworthy businesses. Government guarantees can encourage private lenders to make loans to creditworthy borrowers who would not otherwise receive financing. The Federal Government might also alleviate this situation through lender education programs, technical assistance programs for both lenders and borrowers, and the development of secondary market institutions.

Guarantees are generally preferred over direct Government lending since the object of the policy is to alter private lender behavior. Government funds are leveraged by guaranteeing loans rather than issuing direct loans. Aside from administrative costs, payments are made only when borrowers default and the Government guarantee comes into play. The key issue is, how do you restrict the program to truly marginal yet creditworthy borrowers? Guarantee programs typically are structured so that the private lender shares the risk, say, by guaranteeing less than 100 percent of the principal. The idea is to give lenders sufficient incentive to police the creditworthiness of borrowers, but sufficient protection so they will make risky loans. On the other hand, rural development goals will be advanced if scarce program funds go to borrowers that would otherwise be turned down by private lenders. Government programs designed to assist creditworthy borrowers that were somehow missed by private lenders should become self-financing. That is, the program is hitting its target if default rates do not significantly differ from those of marginal borrowers that find financing from private lenders.

A second potential credit market problem hampering rural development is the fragmented nature of financial markets. If barriers exist that prevent the free flow of loanable funds to their best use, then development efforts might be advanced by integrating rural financial institutions more fully into national financial markets. Federally sponsored secondary markets for agricultural and commercial loans could encourage rural lenders facing capital shortages to make business loans to creditworthy businesses by assuring lenders an outlet for the loans they originate. At the same time, nonlocal capital would be available for businesses meeting creditworthiness tests, and competition among lenders could be expected to hold down borrowing costs.

Efforts to break down credit market barriers and overcome inefficiencies may help rural development by facilitating the business financing process. They would not, however, generate development where the potential did not already exist. If strategies are needed to influence the location of economic development by altering the return on investment, then other business assistance programs will be needed.

Programs to Promote Equity

The loan guarantee and secondary market programs envisioned above could help rural entrepreneurs obtain financing for creditworthy businesses, but neither program involves a subsidy for assisted businesses. But, what if rural businesses are inherently more risky, or less profitable, because of the lack of economies of agglomeration? What if "inefficient" levels of economic activity are desired on equity grounds, or to correct for external benefits of production? In these instances, improving the efficiency of financial markets will not achieve development goals and might even depress development potential. Programs are needed that convey a subsidy to the targeted businesses.

When the development problem is not due to a credit market failure, there is no economic justification for adopting credit programs to address the problem. In those instances where a subsidy is required to promote equity or to encourage a desirable level of economic activity direct payments to individuals and firms is the most straightforward means of attaining development goals. Direct payments are heavily relied upon to meet U.S. agricultural objectives. In addition, they have been used to ensure rail and airline service to communities along unprofitable routes. Their major drawback appears to be political. direct payments are politically more sensitive, and more difficult to justify, than indirect subsidies administered through loan programs. Thus, loan programs, particularly loan guarantee programs, are often selected as the preferred policy tool.

Whether through direct loan programs or through loan guarantees, programs that involve subsidies place the Government in the role of "lender of last resort." The Government helps businesses obtain financing that would not be provided by efficient private capital markets. Benefits may exceed costs from society's point of view; but in the budget, the program will show up as having net outlays. Subsidies arise through charging below-market interest rates, and accepting riskier applicants, which results in relatively high default rates.

The trend in Federal Government credit programs is toward loan guarantees, but their inherent advantages are much less obvious for meeting equity-type objectives. Program objectives require that a subsidy be paid to the participating business, but the very existence of subsidized rates will attract nontargeted firms as well. If the targeted firms are risky, private lenders would have an incentive under most guarantee programs to substitute creditworthy firms for intended noncreditworthy firms. Without close supervision, there would be no guarantee that the entire subsidy would be passed through the private lender to the borrowing firm. Direct loans allow the government more control over who gets loans, the loan size, and other terms. Direct loan programs may permit better controls over potential liabilities and program costs by retaining all aspects of the transaction--evaluating loan applications, disbursing funds, and supervising repayment of loans--within the government agency. Direct loans might also provide the administration and Congress more oversight opportunities. If the pool of loanable funds is fixed, additional loans can be made only as old loans are repaid or upon requesting new appropriations.

Programs to Encourage Business Formation

Direct payment and credit programs may not be the answer when a lack of equity capital is the problem. Most firms are considered too risky at the development stage to qualify for debt capital. While governmental credit programs can provide direct loans or coax private lenders to provide credit under a guarantee program, subsidized loans may not adequately compensate investors for the risks they face. And direct payment programs may not be sufficient to finance the start-up costs of new firms. Equity capital lowers the firm's immediate costs and gives the investor potentially large longrun profits as a tradeoff for risk.

When risks are high, knowledgeable entrepreneurs may not make desired investments. Society might be well served by subsidizing a number of business formations knowing that a high percentage will fail, as long as the surviving firms generate sufficient societal utility. However, individual lenders, investors, and entrepreneurs base their judgments on whether their particular firm is likely to survive and prosper. Credit programs that require private lenders and entrepreneurs to risk losing all of their invested funds when a business fails may not elicit enough private investment to meet program objectives. Credit programs that shift all of the risk to the Government are likely to be prohibitively expensive. In such instances, an equity participation program would allow the government to assume more of the risk of business failure while receiving a payoff commensurate with these risks. Thus, societal goals could be attained without necessarily providing surviving firms a windfall gain paid for by failing firms and Government subsidies.

As an alternative, perhaps the Government could provide incentives for private venture capital pools and SBIC'S to be more active in rural areas. Risk would be lessened due to diversification of equity investments, and investment decisions would be left to private interests. But the viability of such an approach depends on the nature and magnitude of required Government incentives.

Conclusions

The Federal Government has a legitimate role to play in rural economic decisionmaking. Without suggesting that financial assistance to business is the only plausible response to lagging rural economies, we suggest it be considered a viable policy tool for furthering rural development goals. If the societal benefits of Government intervention are greater than the inevitable costs, then an economic argument exists for adopting appropriately designed Federal financial assistance programs. The form of assistance should be determined by the problem that is being addressed, subject to the many other considerations that determine Federal policy.

If creditworthy loans are not being made due to imperfect information, loan guarantees may be best because expected loan losses are low and funds are leveraged. But, direct Government assistance (direct payments or loans at subsidized interest rates) may be more appropriate in cases where equity considerations or noncredit-related market failures require governmental subsidization of participating businesses. In some instances, equity participation is the only equitable way government assistance can be provided to meet societal goals.

The effectiveness of direct financial assistance as a rural development tool can be enhanced or undermined by the presence of other business-oriented and nonbusiness rural development initiatives. Financial assistance is only one approach toward fostering a more vigorous rural business sector. Technical assistance, job training programs, tax policies, State and local government actions, and other types of programs can nurture business growth. Furthermore, other rural development initiatives--investing in rural infrastructure, rural education, rural health facilities--are needed to supplement business-oriented programs. Any approach to rural development which places too much weight on any one development tool is doomed. Only through a set of policies which takes social and economic interdependencies into account can scarce funds be used effectively to foster rural development.

References

1. Blustein, Paul. "President Submits Legislation to Curb Credit Programs," *Wall Street Journal*, Mar. 13, 1987, p. 5.

2. Bosworth, Barry P., Andrew S. Carron, and Elisabeth H. Rhyne. *The Economics of Federal Credit Programs.* Washington, DC. The Brookings Institution, 1987.

3. Combs, Robert P., Glen C. Pulver, and Ron E. Shaffer. *Financing New Small Business Enterprise in Wisconsin*, Research Report R3198. Madison: University of Wisconsin, College of Agriculture & Life Sciences, 1983.

4. Dunkelberg, William C. and Jonathon A. Scott. "Small Business and the Value of Bank-Customer Relationships," *Journal of Bank Research*, Vol. 14, No. 4, Winter 1984, pp. 248-258.

5. Durst, Ron L. "The New Tax Law and Its Effects on Farmers," *Agricultural Outlook*, AO-125, U.S. Dept. Agr., Econ. Res. Serv., Nov. 1986, pp. 26-33.

6. Hamilton, William, Larry Ledebur, and Deborah Matz. *Industrial Incentives: Public Promotion of Private Enterprise.* Washington, DC: Aslan Press, 1985.

7. Hansen, Derek. *Banking and Small Business*. Washington, DC: The Council of State Planning Agencies, 1981.

8. Mikesell, James J. "Comparing Urban and Rural Banks." Paper Presented at the Eastern Economics Association Conference, Washington, DC, Mar. 1987.

9. Milkove, Daniel L., Patrick J. Sullivan, and James J. Mikesell. "Deteriorating Farm Finances Affect Rural Banks and Communities," *Rural Development Perspectives*, Vol. 2, No. 3, June 1986, pp. 18-22.

10. Miller, James P. *Recent Contributions of Small Businesses and Corporations to Rural Job Creation*, Staff Report No. AGES861212. U.S. Dept. Agr., Econ. Res. Serv., Feb. 1987.

11. Small Business Administration. *The State of Small Business: A Report of the President.* Washington, DC, various years.

12. Stam, Jerome (coordinator). *Agricultural Finance: Situation and Outlook Report*, AFO-27, U.S. Dept. Agr., Econ. Res. Serv., Mar. 1987.

13. Vanvig, Andrew, and Alan Collins. *Credit for Wyoming Agricultural and Commercial Sectors: The Scope and Size of Public Lending Programs*, exp. Sta. Bull. 880. Laramie: University of Wyoming, Department of Agricultural Economics, Feb. 1987.

14. Webre, Philip. *Federal Support of U.S. Business*. Washington, DC: Congressional Budget Office, Jan. 1984.

Appendix A

Market Failures Unrelated to Financial Markets

Private markets may not allocate resources efficiently in all instances. Market failures can occur when the true costs and benefits associated with the production and consumption of a good or service are not factored into decisions. In addition, reallocations of resources are seldom costless, and their burdens may not be equitably distributed from society's point of view. These problems may call for some sort of governmental involvement to encourage a more desirable economic outcome.

Correcting for Externalities of Production

Nonreimbursable costs and benefits can arise during the production process. Within a rural development context, one important benefit may be the spiritual pleasure society derives from the existence of certain types of enterprises such as family farms and small independent businesses. In addition, economic stability, heightened competition, and more rapid technological innovation are all societal benefits that have been attributed by some to the operation of many independent business firms. To the extent that America's vision of itself requires the continued existence of these types of establishments, society may not be well served by private business decisions. Private markets do not allow family farmers and small businessmen to charge for any external benefits they provide, so too few of them would continue to produce in the absence of some form of governmental intervention. Farm support programs and Small Business Administration (SBA) activities derive much of their political support from the notion that program beneficiaries deserve some level of governmental support as compensation for the "unfair" treatment they receive at the hands of the market.

Correcting for Agglomeration Economies and Diseconomies

Rural businesses may have trouble competing for resources, even in efficient markets, because of inherent advantages enjoyed by urban firms that arise from agglomeration economies (efficiencies that are made possible by the close proximity of various economic units). These economies can occur within a firm because of scale economies in production (lower average cost as the size of the plant increases). Or agglomeration economies may be due to external economies made possible by lower transportation and communication costs when suppliers, or even competitors, are close by.

Government assistance to achieve agglomeration economies in rural communities could be supported in several ways. If the number of related businesses required for agglomeration economies is not large, government programs might be the key to achieving the necessary aggregation of enterprises. This would amount to an "infant industry" argument; if you provide enough help (protection) initially, industries will grow and prosper on their own in rural areas.

Agglomeration diseconomies (increased costs as the number of enterprises at one location increases) can develop because of congestion, such as traffic problems or water shortages. Since these costs are not paid explicitly by private firms, businesses may keep their urban locations even though society's costs outweigh the locational benefits enjoyed by urban businesses. Thus it may make sense to help other areas attract firms and to develop agglomeration economies without reaching the point at which diseconomies overtake economies. Even a firm that realizes such an approach is optimal is unlikely to move to a rural town on its own. Without government assistance, it would likely incur higher production costs than its urban-based competitors until enough other firms joined it at its rural location to trigger agglomeration economies.

Maintaining Vital Industries and International Competitiveness

Trade theory maintains that free international trade increases societal welfare, with each country producing and trading those goods and services for which it has a comparative advantage. However, some believe that certain industries--weapons production, energy and mineral extraction, agriculture, communication, and transportation--are vital to the national defense and well-being and should be partially protected from market forces. Government involvement (trade restrictions, subsidizing American firms) may be necessary to insure that the Nation maintains adequate productive capacity in vital industries when foreign producers enjoy a comparative advantage in their production.

Business assistance may be justified if American firms face serious hardship because of unfair trading practices by foreign countries. International dumping of products (selling goods in other countries at prices below the cost of production) and unfair import trade restrictions may seriously disrupt the operations of American firms. The best alternative for producing national and global economic efficiency would be negotiating an end to unfair trade practices, but short of this, the Federal Government can take unilateral actions to assist American firms hurt by unfair competition. One option for assisting firms is to subsidize their operations, reimbursing them for costs imposed by international trade.

Facilitating Structural Adjustments

Difficult adjustments accompany any major economic change; rural America's change from a goods-producing to a services-producing economy is no exception. To speed these adjustments, some argue that the Federal Government should help the private sector reallocate productive resources. Such assistance can include human resource development, and the retooling and restructuring of industries. Subsidies may help declining industries emerge as competitive producers, assist new fast-growth industries move to the productive stage of their development, and ease the adjustment of workers displaced by economic change.

Appendix B

Types of Nonfinancial Federal Assistance to Business

At the most fundamental level, Federal efforts to maintain international and domestic peace and protect property rights spur the economy. Federal fiscal and monetary policies attempt to stabilize the financial environment (interest rates, price levels, exchange rates) within which business operates, improving the efficiency of the business community. Through its own activities and those of Federally sponsored agencies, the government tries to insure adequate supplies of debt and equity capital by smoothing the operation of the national and international financial systems. Federal data collection and dissemination efforts help business firms evaluate potential markets for their products and services. International trade agreements attempt to open foreign markets for American products while shielding American firms from unfair foreign competition. These governmental functions lower the risk of doing business and facilitate rather than influence decisionmaking. The Federal Government also attempts to influence investment decisions to encourage economic growth, both generally and among specific sectors of the economy.

Federal Tax Provisions

Through the income tax code, the Federal Government attempts to influence business and consumer spending decisions. Deductions, exclusions, and tax credits applied to both corporate and individual income taxes modify where investment dollars are channeled. The Tax Reform Act of 1986 tried to minimize intrusions of the tax code on private decisions by eliminating many tax incentives and reducing the effect of those that remain through lower marginal tax rates. But the tax code continues to influence some types of business decisions, particularly for agricultural firms (5).

Besides the tax code's direct influence on business decisions, the deductibility of certain State and local government taxes and the exclusion of interest paid on State and local government bonds from taxable income have encouraged these units of government to provide a wide range of business incentives of their own. Businesses benefit from the subsidies inherent in industrial revenue bonds, direct government loans, loan guarantees, interest subsidies, tax concessions, site preparation grants, industrial park and incubator facilities, and other programs offered by State and local governments to attract and hold business firms (6). While the 1986 Tax Reform Act placed strict limits on the amount of private purpose debt that can be issued, it left State and local governments with the responsibility of allocating funds among eligible users. Most State and local business assistance programs do not directly involve the Federal Government but subsidies to businesses that take advantage of these programs bring about a loss in Federal tax revenue. And while taxpayers nationwide help subsidize targeted firms, benefits do not always accrue to the Nation as a result of these Federal tax expenditures. Most State and local government programs were designed primarily to influence the location of business activity, yet their widespread use severely limits any affect State and local programs might have on channeling resources on either equity or efficiency grounds.

Federal Spending Programs

While most of the Federal Government's expenditures are for the purchase of goods and services needed to provide public goods, a portion of these expenditure dollars also support targeted business activities. Directed procurement programs, such as the Buy America Act or small business set-aside programs, shelter the recipients of Federal contracts from competition from nontargeted firms. The Buy America Act supports national defense and other vital industries by giving them sole access to Federal procurement dollars. Likewise, the small business set-aside requirements associated with Federal spending programs are used to support small and minority-owned businesses.

In addition to its procurement activities, the Federal Government also supports certain industries and firms through the sale of government-owned resources. For example, the sale of water to farmers and landowners at artificially low rates subsidizes of Federal water project customers. Providing other resources, such as mineral and oil reserves or timber cutting rights at below-market rates, supports natural resource-based industries to some extent.

Technical Support and R&D Activities

In addition to financial support, the Federal Government also provides technical support to the business community. The SBA has a management assistance program to assist businesses. The Minority Business Development Administration and the Economic Development Administration within the U.S. Department of Commerce provide technical assistance programs targeted toward minority-owned businesses and economically disadvantaged entrepreneurs. The USDA'S Extension Service provides technical assistance to farmers and other rural businessmen. In each case, expertise is provided by the Federal Government either free of charge or at subsidized rates.

The Federal Government also subsidizes the business community through its research and development activities. The Agricultural Research Service within USDA Provides the agricultural community with commercially viable scientific developments which reduce the cost of farming. The Department of Defense, the Department of Energy, the Department of Transportation, and various independent agencies also administer sizable R&D programs which transfer innovative technologies and product lines to the private sector (14).

Federally Sponsored Credit Agencies

While not strictly a Federal Government responsibility, Federally sponsored credit agencies benefit from their close relationship with the Federal Government and perform tasks consistent with Federal policy. Several agencies operate in the home mortgage market and the Student Loan Marketing Association supports a secondary market for Federally guaranteed student loans. None of the Federally sponsored credit agencies is concerned with general business financing. However, the Farm Credit System (FCS) provides credit to the agricultural sector through a system of cooperative land banks and production credit associations. FCS funds the real estate and production credit needs of farm borrowers by selling notes and bonds. Because bond investors believe that the agency status of the FCS is equivalent to an implicit Federal guarantee, they lend funds at lower interest rates to FCS than to private borrowers. Farm borrowers are subsidized in turn as the FCS passes on its savings on borrowing costs in the form of lower loan rates.

Table 1--Sources and uses of funds by small and large nonfarm, nonfinancial corporations, 1978-80 average

Item	Size of corporation	
	Small	Large
	Billion dollars	
Total Funds	85	435
Sources of funds:	Percent	
Internal--		
Depreciation	36.9	24.8
Retained earnings	14.1	16.6
Other Internal	4.5	1.4
External--		
Trade debt	10.8	9.0
Other short-term debt	14.0	17.0
Capital	2.2	9.4
Shareholders' loans	5.7	0
Other long-term debt	11.8	21.7
Uses of funds:		
Plant and equipment	50.9	47.1
Inventory	12.3	8.0
Receivables	17.0	17.3
Other assets	10.6	19.7
Other tangible and intangible	2.5	6.5
Cash	6.7	1.4

Source: (11), Charts 3.2 and 3.3.

Table 2--Business loans of metro and nonmetro banks as a percentage of total loans, dec. 31, 1985 1/

Item	Bank location	
	Nonmetro	Metro
	Percent	
Total business loans	46.1	32.9
Commercial and industrial loans	20.2	28.5
Agricultural loans	25.9	4.5

1/ A bank is classified metro or nonmetro depending on whether or not its headquarters office is in a county belonging to a metropolitan statistical area. Agricultural loans include agricultural production loans and real estate loans secured by farmland.

Source: (8).

Table 3—Federal programs providing financial assistance to rural nonfarm businesses, budget allocations for fiscal years

Agency and program	1980	1981	1982	1983	1984	1985	1986	1987
					Million dollars			
Small Business Administration:								
Individual business loans (direct)	316.2	285.8	150.9	123.7	201.3	202.0	57.0	58.0
Individual business loans (guaranteed)	3,036.1	2,834.1	1,532.0	2,129.7	2,680.0	2,740.0	2,567.0	2,548.0
Small business development corp. loans (direct)	48.6	14.1	11.6	15.4	30.5	33.5	33.5	35.0
Small business development corp. loans (guaranteed)	250.0	100.0	150.0	250.0	350.0	450.0	383.0	373.0
Small business investment corp. loans (direct)	181.3	201.2	161.4	185.6	291.0	297.0	278.0	272.0
Farmers Home Administration, USDA:								
Business and industry grants	10.0	5.0	—	—	—	—	—	—
Business and industry loans (guaranteed)	1073.8	741.0	300.0	300.0	300.0	61.4	95.7	95.7
Economic Development Administration, USDC:								
Business assistance loans (direct)	116.4	54.1	—	17.0	18.1	—	—	—
Business assistance loans (guaranteed)	425.0	425.0	150.0	20.0	150.0	150.0	150.0	150.0
Department of Housing and Urban Development:								
Community development block grants	3,862.0	3,694.6	3,456.0	4,456.0	3,468.0	3,468.0	2,990.0	3,000.0
Urban development action grants	675.0	675.0	473.7	440.0	440.0	440.0	315.8	225.0
Rehabilitation loans	214.2	132.3	49.9	44.9	132.1	—	72.0	200.0

— No funds allocated

Source: Excerpts from NADO News, December 5, 1986, pp. 3-4.

CHAPTER 15

HUMAN RESOURCE POLICIES AND ECONOMIC DEVELOPMENT

Peggy J. Ross and Stuart A. Rosenfeld

Abstract. The economic vitality of rural communities depends on the availability of a high-quality work force. The public investment in education and training programs has been substantial, but the allocation of resources to rural areas is proportionally less than to urban areas. Furthermore, few programs address the unique needs of rural communities and rural people. Education and training programs have made modest differences in the lives of rural residents, but they have not eliminated, nor even substantially reduced, poverty among rural families. To develop human resources in rural areas, programs and policies need to meet the most pressing rural needs, including the alleviation of poverty.

The human element is essential for the economic development of rural America. The economic vitality of rural communities depends on the availability of a high-quality work force. Rural workers, if they are to acquire the knowledge, skills, and behaviors needed to function productively in the modern workplace, require ongoing access to quality education and training. However, the success of human resource development rests on more than finding ways to expand and strengthen education and training. It invariably hinges on finding better solutions to the myriad problems caused by chronic poverty and social deprivation, and on creating jobs that provide adequate incomes (6). 1/

Investment of Federal funds in human resources development to achieve economic goals has historically centered around three sets of policies and programs:

- Public education.
- Employment and training programs oriented toward increasing productivity, replacing skill shortages, revitalizing depressed economies, and retraining or relocating hard-to-employ or displaced workers.
- Poverty programs that contain provisions or requirements for training or job placement activities--often as a condition for receiving other program benefits.

Peggy Ross is a rural sociologist in the Agriculture and Rural Economy Division, ERS, and Stuart Rosenfeld is Director of Research and Programs, Southern Growth Policies Board.

1/ Underscored numbers in parentheses refer to sources listed in the References section at the end of the chapter.

In this chapter, we examine the aims, designs, and operations of the major education and training policies and programs that contribute to rural economic development. This requires an understanding of the linkages between human resources and rural economic development, current and future human resource needs in rural areas, and the present capability of rural human resources and the capacity of further development. Finally, we discuss new directions for human resource development policy in the future. 2/

Skills and knowledge acquired in school and in training programs do influence job growth and productivity. But education has other equally important noneconomic goals that contribute to the overall development and well-being of individuals. Public policy for human resource development encompasses, in addition to education and training, a broad range of other activities particularly in the areas of health, nutrition, and family functioning; in this chapter, however, attention is limited to education and training.

Human Resource Development And Economic Development

Economic theorists have long recognized the importance of education and training to worker productivity. Not until the 1950's, though, did economists began to focus directly on human capital and the relationship between education and economic growth (12). As the theory of human capital developed, education came to be viewed as an investment with potential economic returns to the individual and the community. Human capital theorists, however, have been unable to specify clearly the relationship between education and worker productivity.

Other economists argue that the skills and knowledge acquired in school are not what influence an individual's economic opportunity, particularly in the tight labor markets that characterize the Nation's economy. These economists argue that schools are primarily mechanisms for screening and filtering potential employees (12). These critics of human capital theory, including Lester Thurow and Ivar Berg, believe that once the basic skills and the ability to learn are acquired, most of the job-specific skills that lead to higher productivity and employment success are learned on the job. Schooling simply improves a person's position in a job queue. Still other critics of human capital theory claim it distorts the "true" purpose of education, which is to maximize human potential, not income.

When viewed as human resource development, education can influence local development in a number of ways. First, education and training programs provide a mechanism for building an adequate supply of labor skills required to meet both immediate and long-range labor market needs. New technologies are eliminating many routinized jobs, particularly in labor-intensive high-volume manufacturing industries, and replacing them with jobs that require more

---

2/ Throughout this chapter, the terms rural and nonmetropolitan are used interchangeably, following standard Census definitions unless indicated otherwise.

advanced technical knowledge and skills. Education programs in high schools, vocational-technical centers, community colleges, and universities that develop fundamental work-related skills and behaviors encourage existing businesses to expand and upgrade their operations and serve to attract new business and industry. If local workers lack the education and skills needed to be flexible and technologically responsive, industries will rely on workers from outside the local community to supply their needs. Thus, a community could experience economic growth without a substantial share of the local work force benefiting from new jobs (28, 30, 31).

Second, education and training programs foster long-term economic growth by providing a setting for the development of leadership, business, and innovative skills that new entrepreneurs need to succeed. The unique philosophy of vocational agriculture, which equips youth with skills that help them become successful farm operators or managers of farm-related businesses, may give rural areas an edge in entrepreneurial development.

Third, both the availability and quality of public schools as well as access to colleges, universities, and technical institutions, contribute to a business climate that enables industries and businesses to recruit and retain a high-quality professional and technical work force. In the past, low taxes and low expenditures increased a State's or a community's attractiveness to business. Today, however, industries want better schools for employees and their children and are willing to pay higher taxes to have them (29).

Fourth, the institutions and agencies that operate and administer education and training programs contribute to the overall economic climate of a community through the jobs they create and the local goods and services they utilize. In small rural economies, institutions and public agencies administering education or training programs are one of the major sources of employment and a major market for local businesses.

Changing Needs For Human Resources

Assessing the value of the rural human resource base requires information about the existing inventory of skills, knowledge, and behaviors, the kinds of skills, knowledge and behaviors required now and in the future, and the extent to which the two match. Requirements for human resources are subject to more dramatic change than are the capabilities of the local work force. Whereas skills and knowledge are acquired slowly and require sizable investments of time and money, needs for different kinds of human resources can arise dramatically and change abruptly. New technologies, new business openings or closings, and business expansions may demand radically different skills, knowledge, and behaviors in a relatively short period of time, and the value of a rural community's human resources can drop sharply if the work force is not adaptable to the changing needs.

Anticipating changes in the needs for human resources in the future is one key to increasing the value of the local labor force. What changes are most likely to alter rural human resource development programs and policies?

The continued decline of farming employment and recent losses of manufacturing employment are altering rural human resource needs. For example, about half of all southern nonmetro counties lost manufacturing jobs from 1977-82. The U.S. Department of Labor reports that although total employment in the Nation grew by 33 percent from 1972-86, employment as operatives declined by 14 percent. The most rapid growth in employment was in sales (10 percent) and professional and technical occupations (6 percent) (13).

Rural areas that no longer can attract branch plants to supplement or replace agricultural employment now must depend more heavily on small business growth, entrepreneurship, service industries (tourism, health, and retail trade, natural resources), and, in some more fortunate locations, industries that produce or rely on sophisticated technologies.

Perhaps the most striking change in the rural workplace is its growing resemblance to the urban workplace. Rural lifestyles, however, remain somewhat different and farming, even on a part-time basis, gives a unique shape to rural economies, so small differences in the occupational mix in metro and nonmetro areas remain. For instance, in 1980, nonmetro areas had fewer workers employed in managerial and professional specialty occupations and in technical, sales, and administrative occupations and more working as operators, fabricators, laborers and, of course, farmers. But, for the most part, the work that urban and rural people do between nine and five is increasingly similar (5).

In the future, work will likely become even more similar as workers begin to make more use of new technologies. For example, in 1980, 12 percent of all youths between the ages of 16 and 24 were employed in high-tech occupations (2). In 1984, 30 percent of the work force are in occupations that use or soon will use computers (9). By 1990, three out of four jobs will require education and technical skills beyond high school (18). As a result, only one out of four jobs requires rote memory now, while nearly half require analytical skills, 23 percent require diagnostic skills, and 5 percent require abstract reasoning (37). Some still argue that technology will reduce the need for skilled work, and undeniably it does simplify some aspects of work. But the preponderance of evidence leans toward the need for higher-order skills in the workplace and a concomitant change in the educational curricula. A study by the National Academy of Sciences expresses the needs most succinctly: command of the English language; reasoning and problem solving; reading; writing; computation; knowledge of science and technology; adeptness at oral communications and interpersonal relationships; knowledge of social and economic studies; and good work habits and attitudes (17).

The ability to make use of higher-order thinking skills for economic development, however, depends not only on employee competency, but on how work is organized and managed. More educated workers are being given greater responsibility and autonomy in performing jobs and, thus, have greater opportunities to use their skills and experience. Although data are lacking on the extent of these changes, management that is more participatory and less hierarchical is being widely embraced by both management and labor and by both liberals and conservatives. Thus, if not already common practice, increased responsibility will very likely become a self-fulfilling prophesy.

Ray Marshall writes: "it seems clear that emerging technologies will produce rapid changes, placing a high premium on adaptable organizations, institutions, individuals, and policies" (14).

As the workplace changes, forces in both the domestic and global economies are placing new stresses on rural economies. The rural unemployment rate has doubled in the last decade from 4 percent in 1973 to over 8 percent in 1985 (table 1—see tables at end of chapter). And, underemployment exacerbates the situation further. Over 6 percent of rural workers in 1985 were underemployed, working only part time because of economic reasons. In 1985, 58 percent of nonmetro poor household heads worked at least part time. Social and economic changes have also caused a dramatic rise in women's participation in the work force. In 1980, women made up 41 percent of the nonmetro labor force; and 45 percent of nonmetro women age 16 and over were in the labor force.

Many workers who made their living in declining occupations or in declining industries in rural areas are unable to adjust to new high-growth occupations and industries without considerable retraining and re-education. Workers in rural areas that had sizable manufacturing employment (including agribusinesses) are finding that once-valued highly specialized manual skills, which had been learned on the job, are not easily transferrable to the jobs now available in the rapidly changing workplace. Many simply do not have the basic literacy skills to be retrained at all, creating a pool of hard-to-employ workers. The costs to many rural communities of improving its human resources base to meet new requirements will be considerable and sometimes beyond their means.

Present Capacity of the Rural Human Resource Base

Human resource development for rural economic development is, for the most part, a long-term strategy. Most of the people who will be in the labor force well into the 21st century already have acquired their basic knowledge and skills and formed their behavior patterns. A large proportion of the work force was educated more than a decade ago, and has received no further education or retraining other than that learned on the job or obtained to upgrade current job skills. As a result, their skills are more apt to have been shaped by past labor market needs and education and training programs than by recent, current, or even anticipated events.

In the past, rural youths attended school for a shorter academic year, fewer years of school in total, and were less likely to attend college than urban youths. For example, in 1980 one in every five rural adults age 15 or over had completed fewer than 8 years of schooling, a common proxy for functional illiteracy. In the South, one in four rural adults and three in eight of every rural black adults were functionally illiterate. In all regions but the Northeast, the proportion of adults who completed high school was lower in rural areas. The greatest disparity was in the South where in 1980 48 percent of rural adults had completed 4 years of high school compared with 63 percent of urban adults.

Rural educational institutions, particularly the public schools, and training programs carry the major responsibility for formal human resource development. And the strengths and weaknesses of rural education have helped shape the capacity of the human resource base.

Limitations of Rural Schools

The record of the quality and effectiveness of rural schools is mixed at best; they represent both the best and the worst of human resource development. Rural schools with highly qualified and committed teachers, sufficient resources, student participation in a wide range of activities, leadership training, and community support have indeed been good sources of human resources. But, on average, rural schools have fewer resources, less adequate facilities, and less experienced teachers than urban schools (25).

Rural school districts have greater difficulty attracting and retaining teachers with experience and advanced degrees (figs. 1, 2 see figures at the end of chapter). Teachers in rural schools are more likely to have less than 5 years of experience, less likely to have more than 20 years of experience, and less likely to hold an advanced degree. Urban teachers are generally within commuting distance of a graduate school and able to pursue an advanced degree without taking a leave of absence. Despite the apparently higher turnover among teachers in rural schools, a larger share (82 percent) expressed satisfaction with teaching as a profession than teachers in urban schools (70 percent).

One measure of the quality of education and its relevance to emerging labor market needs is math and science education (fig. 3). A 1982 survey indicates that rural high school seniors are less likely than urban high school seniors to have taken four or more math or science courses. Schools in rural communities (fewer than 10,000 inhabitants) scored lower in math achievement scores in 1982 than all other school locations except "high poverty central cities" (10).

Despite equalization formulas and, in most States, population density factors that provide added funding to small schools or districts to compensate for diseconomies of scale, rural schools spend less State and local money per student than urban schools. For example in North Carolina in 1986, nonmetro counties spent an average of 10 percent less per pupil than metro counties. The State's per pupil metro and nonmetro allocations were nearly equal, but local districts in nonmetro counties were either unable or unwilling to raise revenues, and nonmetro local expenditures were less than two-thirds of metro local expenditures. In recent years, the decline of rural populations and more dramatic decline of rural land values have worsened the situation. About half of school revenues are raised locally, mostly through property taxes. Therefore, school revenues suffer in areas with a declining population and lower land values.

Strengths of Rural Schools

The smaller average size of rural schools also provides some advantages over larger, urban schools. Despite the unfavorable statistical comparisons between urban and rural education and training, some factors suggest that rural schools may be better positioned for the future than the statistics indicate.

First, small organizations are more flexible and less hierarchical than large organizations, and staffs are, by necessity, less specialized. The smaller scale of rural schools may be more conducive to the current wave of reforms, which recommend greater flexibility and autonomy for teachers and school administrators.

Rural youths participate in more school activities during the school day and assume more leadership responsibilities. Rural youths, possibly because of smaller schools and more personal attention, had lower dropout rates (12.8 percent) than urban youth (18.9 percent) in 1982 (33).

Further, agricultural education reinforces leadership training, science education, business skills, and innovation--all traits that add to the value of human resources in emerging economies.

Rural youths are more likely to be enrolled in vocational education programs than urban youths, which is somewhat surprising since general perceptions are that rural youth have fewer curricula choices (fig. 4). The expanded curriculum is due, in large part, to the success of Federal programs supporting the construction of area vocational centers in rural areas since 1965, which greatly expanded vocational opportunities. More than $1 billion from the Appalachian Regional Commission and the Economic Development Administration were used to match State and local funds for new school construction (22). The occupational program mix in rural areas, however, differs from the mix in urban areas. Compared with urban youths, rural youths in vocational education are more likely to be enrolled in agriculture, business, occupational home economics, and trade and industry programs and less likely to be enrolled in marketing and distribution and technical programs, which are growth occupations.

Rural education and training will continue to lag behind most urban areas if only traditional quantitative measures of quality are used. There are many pockets of poverty where human resources are not adequate to support economic growth, especially in the South. But, in many rural areas, human resources, which by some standards appear deficient, may in fact prove to be more flexible and more adaptable to change than in urban areas. The challenge is to protect the strengths of rural education while shoring up its weaknesses.

Federal Education Policies

The Federal Government has had considerable influence on rural human resource formation over more than a century. The Morrill Act of 1862 set the stage by establishing land-grant colleges for instruction in agricultural and mechanical arts. That law, plus the subsequent act establishing black land grant colleges in 1890, represented the total Federal role in public education until well into the 20th century, when new scientific advances in agriculture, urbanization, and the expansion of public, compulsory education sparked new congressional debates over support of public education and training. In 1914, The Smith-Lever Act provided a network of extension agents to improve the knowledge and skills of farmers, and in 1917 the Smith-Hughes Act provided Federal funds to expand vocationally oriented agricultural education in the Nation's high schools.

The Smith-Hughes Act was to become one of the most important Federal actions in behalf of human resources. It legitimated and expanded high school vocational education by providing Federal funds (in proportion to the States' rural populations) for salaries and training for teachers in vocational agriculture and Federal funds (in proportion to the States' urban populations) for teachers in trade and industry programs and home economics. The legislation ostensibly unified the agricultural and industrial programs as a single-purposed system, but allowed for the differences in requirements of rural and urban youth. Thus, the two programs diverged in their content and philosophy. Trade and industrial programs, which were intended to instill industrial discipline, were not conducive to the independence, innovation, and entreprenuership of agriculture. In contrast, vocational agriculture emphasized leadership training, business skills, problem solving, and decision making, traits neither desired nor rewarded by industry management. Further, trade and industrial programs were enacted by the business community to strengthen the working class while vocational agriculture resulted from a grass roots effort of agrarians to perpetuate themselves and improve their productivity (32).

The Vocational Education Act of 1963 radically revised Federal vocational education legislation to correspond more closely to labor market demand. Urban educators were disturbed by the disproportionate strength of vocational agriculture within vocational education in light of a steady decline in agricultural employment. The resulting legislation gave States block grants with the provision that they plan and fund programs to match projected labor market demand. The new legislation further expanded vocational education in rural areas but greatly reduced the proportion of Federal funds going to vocational agriculture. Agricultural programs responded by redefining their curricula to include a broad range of nonfarming occupations, including and related to agribusiness.

In the mid-1960's, Federal policy expanded its roles and goals to include equity. The Civil Rights movement brought about new education policies to strengthen education programs for economically disadvantaged children. The Elementary and Secondary Education Act of 1965 authorized about $1 billion to provide compensatory education for poor children, and the Higher Education Act of 1965 provided support for low-income college students.

The recent roles and influence of the Federal Government on education have been, in large part, a continued response to inequities in educational opportunities. But, relative to other sources of revenue, Federal support for education has diminished. For example, about 6.1 percent of the budget of elementary and secondary schools came from the Federal Government in 1985, down from 8.9 percent just 5 years earlier. Further, Federal aid to college students is also declining in real dollars.

Federal per capita dollars for elementary and secondary education have been slightly higher in nonmetro than metro areas, $23 versus $20 in 1980 (table 2). Although rural school districts receive more Federal per pupil dollars for compensatory education since the incidence of poverty is higher among rural youths, this compensatory money, which is earmarked for meeting special needs of economically disadvantaged students rather than supporting everyday budgetary needs, contributes little to the quality of the basic education program. According to a study conducted for the Congress in 1981, rural districts in 9 of 12 States received less per pupil dollars for vocational education than received in all U.S. districts. The difference was substantial in seven of the States (22).

Despite reductions in Federal aid, the Federal Government still makes important contributions to some forms of human resource development and for some segments of the population: namely, vocational education, compensatory education, and access to higher education.

Vocational Education

The current Federal legislation authorizing support for vocational education is the Carl D. Perkins Vocational Education Act of 1984. The new law added explicit economic development aims while retaining the equity aims of the previous legislation. It targets 57 percent of States' basic grants to special populations: the disadvantaged, the handicapped, women, adults, and the incarcerated. The law also restricts the use of nontargeted funds to program improvements and expansions.

Compared with earlier legislation, the most significant change is the emphasis on economic development, basic skills, and a shift away from overspecialization at the secondary level. The new legislation emphasizes economic growth through its stated intent to increase productivity, reduce structural unemployment, develop human resources, and expand the economic base of the Nation. For example, the law targets skills for new technologies, adult retraining, and training to help women get higher-paying jobs. The legislation contains no specific rural provisions. Urban and rural human resources needs are, by implication, the same, and States are not asked to make any distinctions in either their plans or their programs.

Compensatory Education

In 1981, the Congress enacted the Education Consolidation and Improvement Act (ECIA), which combined Title I of the Elementary and Secondary Education Act of 1965 as Chapter 1 of the new act with more than two dozen smaller educational programs merged under Chapter 2. Chapter 1, which funds compensatory education, is particularly important to human resource formation in rural areas because of their higher levels of of poverty.

The current law, which is due to expire at the end of fiscal year 1987, authorizes the largest single federally funded program in the public schools ($3.7 billion in 1987) and serves nearly 5 million disadvantaged students. Yet, the funding level (measured in real dollars) is significantly lower than under Title I. Moreover, some of its mechanisms have been altered. Parental involvement, for example, has been de-emphasized and funding for State administration has been cut back.

Higher Education and Student Aid

The biggest single factor in the increased access of rural youth and adults to higher education is Federal financial support. The GI Bill opened the doors to college for returning veterans, and subsequent financial aid and loan programs have kept them open. Assistance is intuitively more important to access for rural candidates than for urban candidates because rural youths on average are poorer and less likely to be within commuting distance of a college. Basic Economic Opportunity Grants (Pell grants) and guaranteed loans give rural youths the same chance to increase their economic value to the economy and to themselves that urban youths have. In fiscal year 1986, $8.1 billion was appropriated for grants, loans, and work-study programs.

The newest and potentially most important instrument in rural human resource development is the community college/technical institute. Of all the educational institutions, the goals of these 2-year colleges are the most explicitly aimed at human resources development, and their links to economic development are the strongest. Yet, the Federal Government supplies only a fraction of resources to these schools. The Economic Development Administration and Appalachian Regional Commission helped with construction and startup costs in the past, but that has all but ended; a minor portion of the Carl D. Perkins Vocational Education Act appropriation is targeted to the 2-year schools; the student aid provides tuition support, and a small part of Title III of the Higher Education Act is for the improvement of management. But total Federal support for 2-year colleges is negligible compared with the importance of the institution to human resources and rural development.

Federal Employment Training Policies

Although Federal legislation establishing the Employment Service dates back to 1933, major Federal involvement in training first occurred with the establishment of the Manpower Development and Training Act (MDTA) in 1962 (35). 3/ MDTA was the first full-scale government training program to retrain displaced and unemployed workers in new skill areas. Its original thrust was to retrain long-time workers who had been technologically displaced, but as the antipoverty movement mounted, MDTA expanded its focus to involve training in literacy and basic skills, especially for disadvantaged youths.

In conjunction with the War on Poverty, the Economic Opportunity Act of 1964 generated three employment and training programs, some of which are still in operation (26). The Job Corps provided the hard-core disadvantaged with a comprehensive package of training, counseling and job placement assistance in a

---

3/ Located throughout the country, employment services, operated by States with some Federal support, function largely to match workers to jobs. Only about a third of job vacancies are listed with public employment services.

campus-like setting. 4/ The Neighborhood Youth Corps directed training and job-related services to youth, and the Work Experience Program was a work-and job-training program for welfare recipients. In 1967, Congress established the Work Incentive Program, an employment registration program that still exists, to assist employable welfare recipients get a job.

In response to the increasing number and complexity of employment and training programs, the Comprehensive Employment and Training Act (CETA) was enacted in 1973 as a mechanism for coordinating numerous programs and their services. Working through local government units (prime sponsors), the CETA program covered a broad range of employment and training services, that emphasized public service employment and classroom and on-the-job training for the economically disadvantaged and physically handicapped (8).

Studies of the overall effectiveness of CETA are mixed (8, 35). With its strong emphasis on public service employment for the disadvantaged, CETA was successful in redistributing jobs toward low-income, hard-to-employ people. Per person costs for classroom training, on-the-job training or work experience ranged from $2,100-$2,700, but the benefits, in terms of increased earnings, may not have been commensurate with program costs. In one evaluation, women in the program earned $800-$1,300 more per year, but the training did not significantly affect earnings of male participants (35). One survey of rural communities revealed that most people believed that CETA was effective, but that it was not extensive enough to meet rural needs (21).

Although Federal per capita support for education programs is greater in nonmetro than metro areas, Federal support to nonmetro areas for training and employment programs may be sharply less than the support to metro areas (table 2). 5/ In 1980, for example, nonmetro counties received $18 per capita for training and employment, while metro counties received $47 per capita.

At the present time, Federal investment in job training activities is vested in two sets of programs: programs designed to train or retrain unemployed or hard-to-employ groups of workers, and programs to offer help, usually income assistance, to the poor. The main legislative vehicle for the first set is the Job Training and Partnership Act (JTPA), enacted in 1982, that replaced the

---

4/ The Job Corps and Summer Youth Employment were later covered under the Comprehensive Training and Employment Act of 1973.

5/ Between 1964-1983, the proportion of Federal outlays in the Nation that went for employment and training programs represented no more than 2-1/2 percent of total expenditures, in any given year. The expenditures rose steadily until the late 1970's, and dramatically declined in the early 1980's, despite rises in unemployment (8). Beginning in the early 1980's, Federal monies for training and employment programs were collapsed into block grants to States. Therefore, national data sources no longer report Federal allocations for training and employment outlays for metro and nonmetro areas. These data may be available in some States, but no clearinghouse currently exists for compiling them for the Nation.

Comprehensive Employment and Training Act (CETA) of 1973. 6/ In addition, the Trade Act of 1974 offers assistance to firms and workers displaced as a direct result of foreign competition.

JTPA

Although many of its goals are the same, JTPA's design for administering programs differs from CETA's in several significant ways (23, 7). JTPA is primarily a training program; unlike CETA, it contains no provisions for public service employment. This partially accounts for JTPA's lower funding levels. Current funding for JTPA is slightly under $4 billion, considerably less than the $10 billion allocated to CETA in its peak year (1979). While CETA's funding was administered directly through the U.S. Department of Labor, most of JTPA's funds are allocated (on a formula basis) to States, and allocated within States to specially designated administrative units known as service delivery areas (SDA's). 7/ Over 600 SDA's are presently operating JTPA programs. Unlike CETA, JTPA also provides for involvement of local private industry councils (PIC's), which often administer the job-training programs in an SDA. The assumption is that local industry participation will not only stimulate job creation but will help design training programs to fit local needs. The decentralized structure of JTPA encourages (and has resulted in) flexibility and adaptation of JTPA to local needs. Thus, the implementation plans vary significantly from State to State.

JTPA contains provisions to offer a range of educational, job-training, and related services to several economically disadvantaged groups. 8/ Title II provides training and other services to disadvantaged youths and adults, including unemployed workers, and summer employment and training for disadvantaged youths. 9/ Title III covers training and job-related activities for dislocated workers, while Title IV, section 402 authorizes job training, placement and related services for migrant and seasonal workers.

Two additional features of JTPA's design are noteworthy, especially because of their potential relevance for rural areas. First, the factors used to allocate funds (number unemployed, the share of excess unemployed, the share of excess employment, and the share of poverty) may benefit rural areas, with their

---

6/ JTPA was amended in 1986; one amendment added language to specifically cover displaced farmers under Title III.

7/ Units of local government with a population of 200,000 or more, or consortia of contiguous government units with a total population of at least 200,000 are entitled to automatic designation as an SDA, on petition to the State Governor.

8/ Programs formerly under CETA that were subsumed JTPA include the Job Corps, Summer Youth Program, and programs for Native Americans, migrant and seasonal workers, and veterans (mainly Vietnam veterans).

9/ Under JTPA, the Federal Government has major responsibility for operating the Job Corps, formerly under CETA, for economically disadvantaged youths age 14-21. However, the State's role is expanded.

higher levels of unemployment and poverty. Second, JTPA sets aside about 25 percent of its funds to be used at the discretion of the Secretary of Labor for special programs and projects. To date, approximately 20 States have established special programs for displaced farmers. 10/ Nebraska, for example, used support from the Secretary's discretionary fund to establish a program for displaced or financially distressed farm-related workers and farmers.

> The product of a statewide planning effort, the program taps a full range of State resources, both public and private. It benefits from a diversity of services, minimizes duplication of services, and increases efficiency. Delivered through six ag action centers located at community colleges, participants can take advantage of a full range of services, including assessments to measure abilities, interests, and physical tolerance; counseling; entrepreneurial workshops; job placement; and traditional skill training (15).

JTPA is undisputably the main vehicle for public employment training programs now. To what extent are JTPA programs reaching rural areas? What effects are the programs having on training and placing rural disadvantaged and displaced workers? Unfortunately, national data are unavailable to answer definitively either of these questions. Indicators of allocated resources and performance are collected at the national level by service delivery areas, but unless States collect and maintain county-level statistics, it will not be possible to judge the long-term effects (and shortcomings) of JTPA for rural areas. A special survey conducted by the National Alliance of Business indicated that in 1984, on average, urban SDA's received over twice as much Title II A funds as did the rural SDA's ($4 million versus $1.8 million) (19). 11/

A GAO analysis estimates that possible underestimates of unemployment in rural counties may have cost small communities as much as $129 million in JTPA funds in 1984 (20). Whether or not JTPA's design will be sufficient to overcome some of CETA's shortcomings in training and in placing the most seriously disadvantaged workers remains a question for researchers and program evaluators, though it is dubious whether the question will be answered for rural areas without more adequate data.

10/ Data on special programs for displaced farmers are part of a data bank at the Center of Agriculture and Rural Development Council of State Governments. Displaced farmers are generally eligible for assistance under Title III provisions. However, indications are that dislocated workers programs in many States are oriented to urban industrial workers. A subset of displaced farmers may be eligible for JTPA services under Title IIA, although these programs tend to emphasize education and training for low income persons with limited skills.

11/ Data were unavailable to calculate per capita amounts, thus, these figures may be misleading.

Trade Act of 1974

The Trade Adjustment Assistance Program, authorized under the Trade Expansion Act of 1962 and later the Trade Act of 1974, provides assistance to firms and workers adversely affected by foreign competition. Displaced farmers and their hired workers generally do not benefit from this program because of the difficulty in making direct connections of the economic crises in farming to international competition. However, displaced rural industrial workers could benefit from the provisions of the program, including weekly cash benefits for up to 52 weeks, job training, job search assistance, and resettlement costs.

Welfare Programs

The employment training programs discussed above have been heavily targeted toward the poor. In addition, work and work training requirements have often been attached to welfare policy in some form. Over the years, a considerable number of programs have been tried as social experiments or demonstration projects to assist the poor in the labor market (8). 12/ Other programs have targeted resources, often in the form of tax benefits, to employers who create jobs for certain disadvantaged groups including youths, welfare recipients, ex-convicts, former drug addicts, disabled workers, and vietnam veterans. One program still in existence is the Targeted Jobs Tax Credit (TJTC) enacted in 1978. Its effectiveness is questionable, because "employers are reluctant to get involved with government bureaucracy or to ask job applicants for information that would reveal their eligibility, and/or because applicants are reluctant to volunteer such information" (8).

The program most in the current limelight is the Community Work Experience Program (CWEP), commonly known as workfare. The Omnibus Reconciliation Act of 1981 authorized States to establish mandatory CWEP programs, requiring welfare (AFDC) recipients to participate in work training and work experience with the ultimate goal of moving them into jobs and off the welfare rolls. 13/ About half of the States had set up some kind of workfare program by 1986, some on an experimental basis. 14/ In some cases, work requirements are mandatory, in others, voluntary.

Early results suggest that in a limited situation, simple workfare programs can benefit some welfare recipients (38). The outcomes of larger-scale applications in different economic and social settings particularly rural areas, is unknown.

12/ Examples include: Seattle-Denver Income Maintenance Experiment SIME/DIME 1971-78), National Supported Works Demonstration (1975-80), and Employment Opportunity Pilot Project (1979-81).

13/ Changes in AFDC in 1981 that included new limits on child care deductions, and quicker reductions in benefits, based on job earnings, may have caused disincentives to work (1).

14/ Of three programs for which analysis of results of research evaluations have been released, two are in California and one in Massachusetts.

The Congress is currently considering new proposals to expand and strengthen workfare requirements for welfare families. Another proposal offers incentives to States that are successful in assisting poor employable household heads with training and placement in a nonsubsidized job. The proposals, however, give no attention to the application of the programs in rural areas, many of which are small, sparsely populated and economically depressed.

In summary, a range of education and training programs exists for human resources development in urban areas. However, few programs contain specific provisions for addressing the unique needs of rural communities and rural people. In fact, the basic design of most programs conforms to an urban model, although, in some instances, special adaptations have been made to accommodate rural problems as in the case of JTPA's displaced- farmer programs. Education and training programs have made modest differences in the lives of some rural residents, but the evidence remains that they have not eliminated, or even substantially reduced, poverty among rural families.

New Policy Directions

Economic forces and social conditions operating today and the unique characteristics of the rural setting will continue to shape human resource policy needs. An immediate need that will likely become even more pronounced is retraining of displaced workers. Retraining needs are unusually great in rural areas, where unemployment and illiteracy rates are high, and private training opportunities are scarce. Displacements, due to an overall decline of manufacturing employment, have left a relatively unskilled, undereducated, and immobile labor force, especially in the rural South. Greater needs for basic skills, coupled with diseconomies of scale, raise training costs. Thus, training in rural areas depends heavily on Federal support.

Furthermore, the ability of rural disadvantaged workers to profit from training programs often depends on how well communities can coordinate basic education and training with supportive services, like transportation and communications, crucial considerations in isolated rural areas. Many rural poor also need additional support from income assistance programs, either on a temporary or longer-term basis.

A second need is education for poor and educationally disadvantaged. Adequate levels of support for compensatory education and improved design (and evaluation) of compensatory programs could benefit many rural youths.

Third, the needs for financial aid for higher education will continue to be greater for rural than for urban youths. The former, on average, are more likely to be poor and outside commuting distance of a 4-year college or State university. Also, the future development and expansion of technical institutions and community colleges could increase the options for higher education in rural areas.

Fourth, human resource policies and programs that allow for adaptations to unique rural settings could greatly benefit rural communities and rural people. Programs that compensate for diseconomies of scale are important since the operation of rural programs of comparable quality to urban programs tends to be more costly. Rural areas may also require more resources for telecommunications and outreach, because of the difficulty in reaching rural residents with information and services. Furthermore, programs that build on the strengths of rural institutions, such as vocational agriculture, the extension service, and the rural school will foster better human resource development.

Finally, the evaluation of human resources development rests on the development of national data to enable policymakers to assess the effectiveness of human resources programs in rural areas. The ability to gauge the extent to which public investments in education and training programs are reaching rural areas, and the effects of such programs on improving the economic well-being of rural communities and rural people, is important to policy formulation.

References

1. Bawden, D. Lee, and John L. Palmer. "Social Policy: Challenging the Welfare State." John L. Palmer and Isabel V. Sawhill (eds.), The Reagan Record. Cambridge, MA: Ballinger Publishing Co., 1984.

2. Berryman, Sue E. The Adjustments of Youth and Educational Institutions to Technologically-Generated Changes in Skill Requirements, Research Report RR-85-08. Washington DC: National Commission for Employment Policy, May 1985.

3. Carroll, Dennis C. High School and Beyond Tabulations: Background Characteristics of High School Teachers. Washington, DC: National Center for Education Statistics, January 1985.

4. ________________. High School and Beyond Tabulations: Mathematics Courses Taken by 1980 High School Sophomores Who Graduated in 1982. Washington, DC: National Center for Education Statistics, April 1984.

5. Cobb, James C. Industrialization and the Southern Society 1877-1984. Lexington, KY: University Press of Kentucky, 1984.

6. Commission on the Future of the South. Report on the Committee on Human Resource Development. Southern Growth Policies Board, Raleigh, NC, 1986.

7. Economic Research Service, U.S. Department of Agriculture. "Public Policies for Displaced Farmers and Their Families," unpublished staff document. Agriculture and Rural Economics Division, January 1986.

8. Evanson, Elizabeth. "Employment Programs for the Poor: Government in the Labor Market" FOCUS, vol. 7, no. 3, Fall 1984, pp. 1-7.

9. Goldstein, Harold, and Bryna Shore Fraser. Training for Work in the Computer Age: How Workers Who Use Computers Get Their Training. Washington, DC: National Commission for Employment Policy, June 1985.

10. Grant, W. Vance, and Thomas D. Snyder. Digest of Educational Statistics 1985-1986. U.S. Department of Education, Washington, DC: Government Printing Office, 1987.

11. Kolstad, Andrew. High School and Beyond Tabulations: Characteristics of 1980 High School Sophomores Following Different Curricular Paths. Washington, DC: National Center for Education Statistics, September 1985.

12. McCrackin, Bobbie. "Education's Contribution to Productivity and Economic Growth." Economic Review, Federal Reserve Bank of Atlanta, November 1984, pp. 8-23.

13. Mark, Jerome A. "Technological Change and Employment: Some Results from BLS Research" Monthly Labor Review, vol. 110, no. 4, April 1987, pp. 26-29.

14. Marshall, Ray. Unheard Voices, New York: Basic Books, 1987.

15. Mazie, Sara M., and Herman Bluestone. "A Helping Hand for Displaced Farmers." Rural Development Perspectives, vol. 3, issue 1, October 1986, pp. 15-17.

16. MPR Associates. Classification of Vocational Education Courses and Students. Berkely, CA, 1986.

17. National Academy of Sciences. High Schools and the Changing Workplace: The Employers View. Washington, DC: National Academy Press, 1984.

18. National Alliance of Business. Employment Policies: Looking to the Year 2000. Washington DC: National Alliance of Business, 1986.

19. _________. What's Happening with JTPA? A Complete Analysis of NAB's 1984 Survey Data. Washington, D.C., 1985.

20. National Association of Towns and Townships. "Rural Jobless Undercounted." NATaT's National Community Reporter, no. 60, April 1986, p. 2.

21. National Governors' Association. CETA and Rural Areas. Washington, DC, 1979.

22. National Institute of Education. The Vocational Education Study: The Final Report. Washington DC: Government Printing Office, 1981.

23. Nilsen, Sigurd R., and Frank A. Fratoe, "Job Training Partnership Act, CETA, and Rural Communities." Rural Development Perspectives, vol. 1, issue 1, October 1984.

24. Owings, Jeffrey A. High School and Beyond Tabulations: Science Courses, Taken by 1980 High School Sophomores Who Graduated in 1982. Washington DC: National Center for Education Statistics. April 1984.

25. Pauley Bailey, Civil Action No. 75-1268, West Virginia, 1982.

26. Plotnick, Robert D., and Felicity Skidmore. Progress Against Poverty. New York: Academic Press, Inc., 1975.

27. Reid, J. Norman, and Eleanor Whitehead. Federal Funds in 1980: Geographic Distribution and Recent Trends, ERS Staff Report no. AGES820927. Economic Research Service, U.S. Department of Agriculture, Nov. 1982.

28. _________. "Education and Training as Industrial Policy." SGPB ALERT, Southern Growth Policies Board, Research Triangle Park, NC, May 1984.

29. __________. "Reviewing the Ratings." *SGPB Alert*, Southern Growth Policies Board, Research Triangle Park, NC, May 1987.

30. __________. *Shotgun Weddings, Open Marriages and Quickie Divorces: An Analysis of Federal Policies and Programs for Education and Local Development in the United States*. Organization for Economic Cooperation and Development, Paris, 1980.

31. __________. "The High School in a Rural Economy." *Foresight*, vol. 3, no. 2, summer 1985.

32. __________. "Vocational Agriculture. A Model for Education Reform," *Education Week*, September 1986.

33. Stern, Joyce D., and Mary Fraser Williams (eds.). *The Condition of Education: A Statistical Report, 1986 Edition*. Center for Education Statistics. Washington DC: U.S. Government Printing Office, 1987.

34. Subcommittee on Intergovernmental Relations. *Governing the Heartland: Can Rural Communities Survive the Farm Crisis?* U.S. Senate Committee on Governmental Affairs, May 1986.

35. Tweeten, Luther. "Rural Labor Market Performance." In Molly S. Killian et al. *Symposium on Rural Labor Markets Research Issues*, ERS Staff Report no. AGES5860721. Economic Research Service, U.S. Department of Agriculture, Sept. 1986.

36. U.S. Department of Commerce, Current Population Survey, unpublished, and Series P-60 for selected years, 1973-1985.

37. White, Arthur, and Hillary Pennington. *Jobs for Arkansas' Future*. Little Rock: Arkansas Office of the Governor, 1986.

38. Wiseman, Michael. "Workfare and Welfare Policy." *FOCUS*, vol. 9, no. 3, Fall and Winter, 1986, pp. 1-9.

Table 1--Selected economic characteristics of the nonmetro population

Year	Workers in nonmetro areas 1/	Unemployed workers in nonmetro	Nonmetro workers		Nonmetro poor household heads	Nonmetro persons below poverty
			Unemployed	Underemployed 2/		
			Percent			
1973	30.7	27.7	4.4	3.5	57.3	14.0
1974	30.6	28.2	5.1	4.1	NA	14.2
1975	30.7	28.9	8.0	4.8	57.5	15.4
1976	30.8	28.0	7.0	4.4	56.7	14.0
1977	31.1	29.0	6.6	4.3	55.4	13.8
1978	31.5	30.4	5.8	4.1	55.4	13.5
1979	30.8	30.2	5.7	4.2	52.9	13.8
1980	31.0	31.7	7.3	5.0	58.0	15.4
1981	31.1	32.2	7.9	5.3	58.7	17.0
1982	30.6	31.9	10.1	6.8	57.1	17.8
1983	30.6	32.3	10.1	6.6	58.8	18.3
1984	30.6	32.7	8.1	6.1	NA	NA
1985 3/	21.5	25.0	8.4	6.4	58.0	18.3

NA = Not available.

1/ Includes all members of labor force.
2/ Workers employed part-time for economic reasons.
3/ The estimates are not strictly comparable with prior years because of changes in the Current Population Survey estimation procedures.

Source: (36).

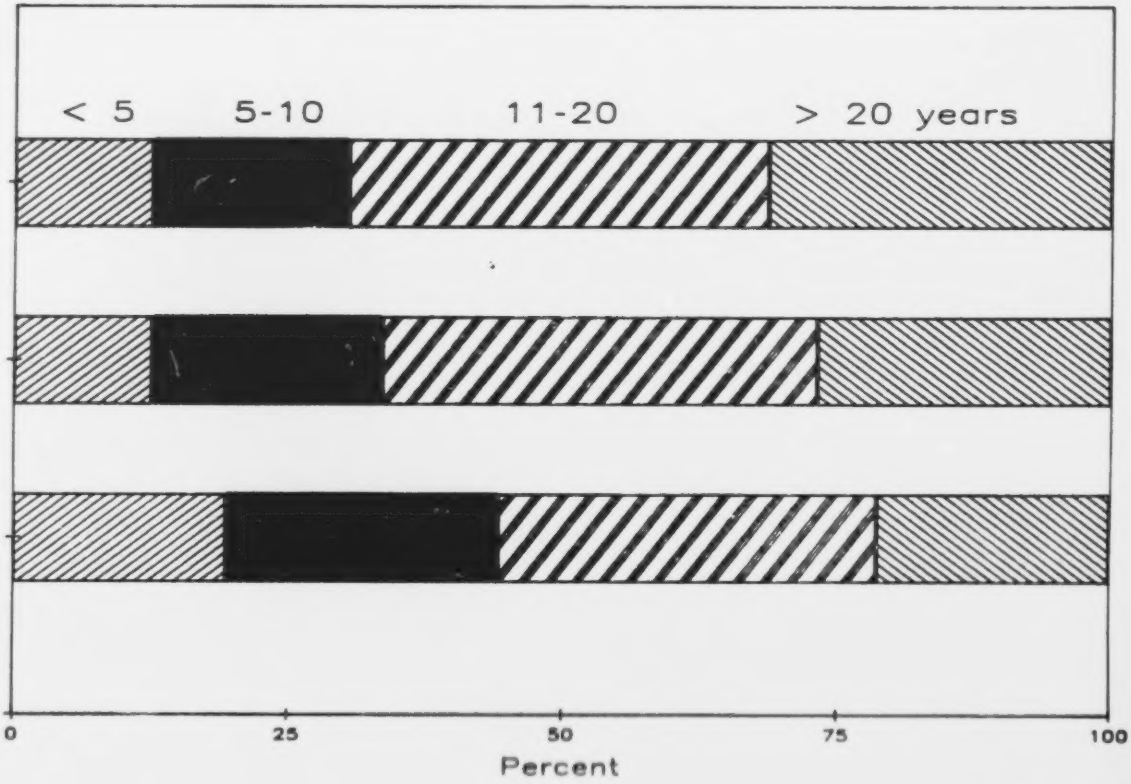
Table 2--Federal funds for human resources programs fiscal year 1980

Function	U.S.	Metro	Nonmetro
		Dollars per capita	
Elementary and secondary education	21	20	23
Food and nutrition	1	1	1
Health services	12	14	7
Social services	4	4	2
Training and employment	39	47	18
Total	77	86	51

Source: (27)

Figure 1

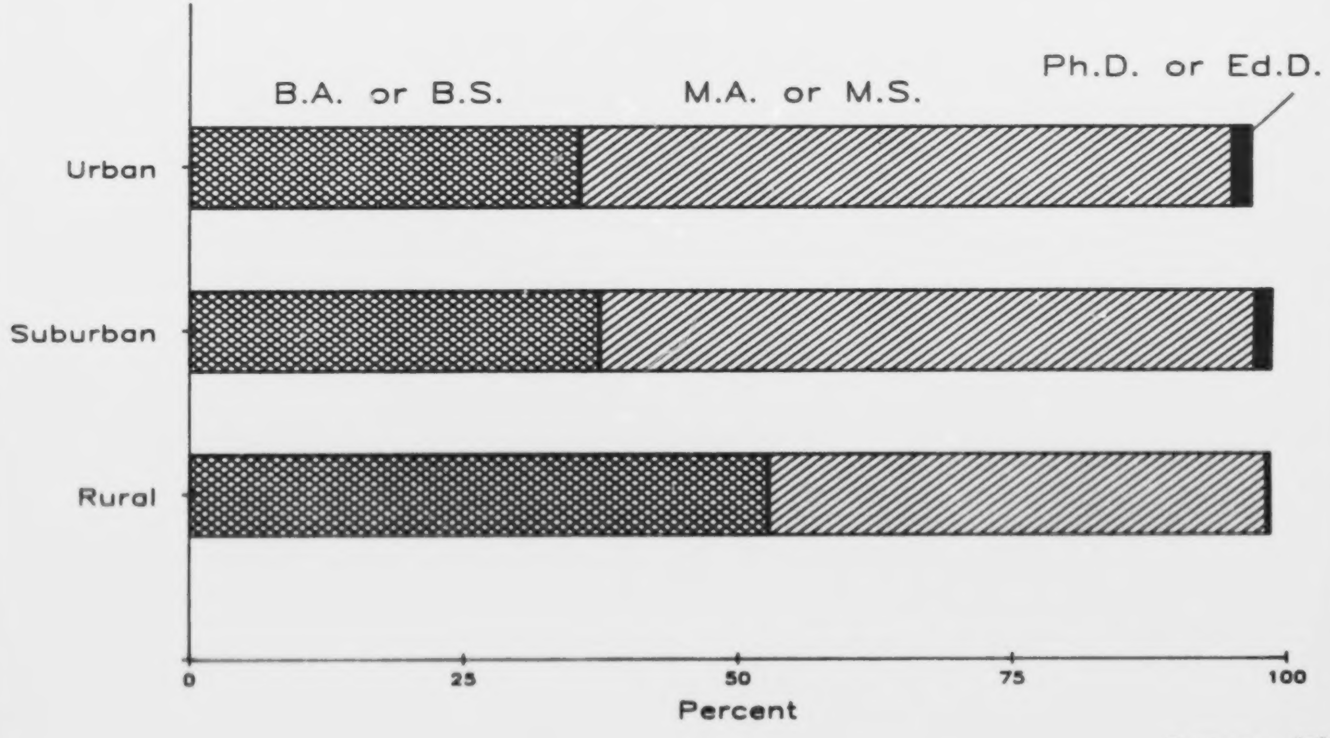
Teaching experience of 1982 high school teachers



Source: (3).

Figure 2

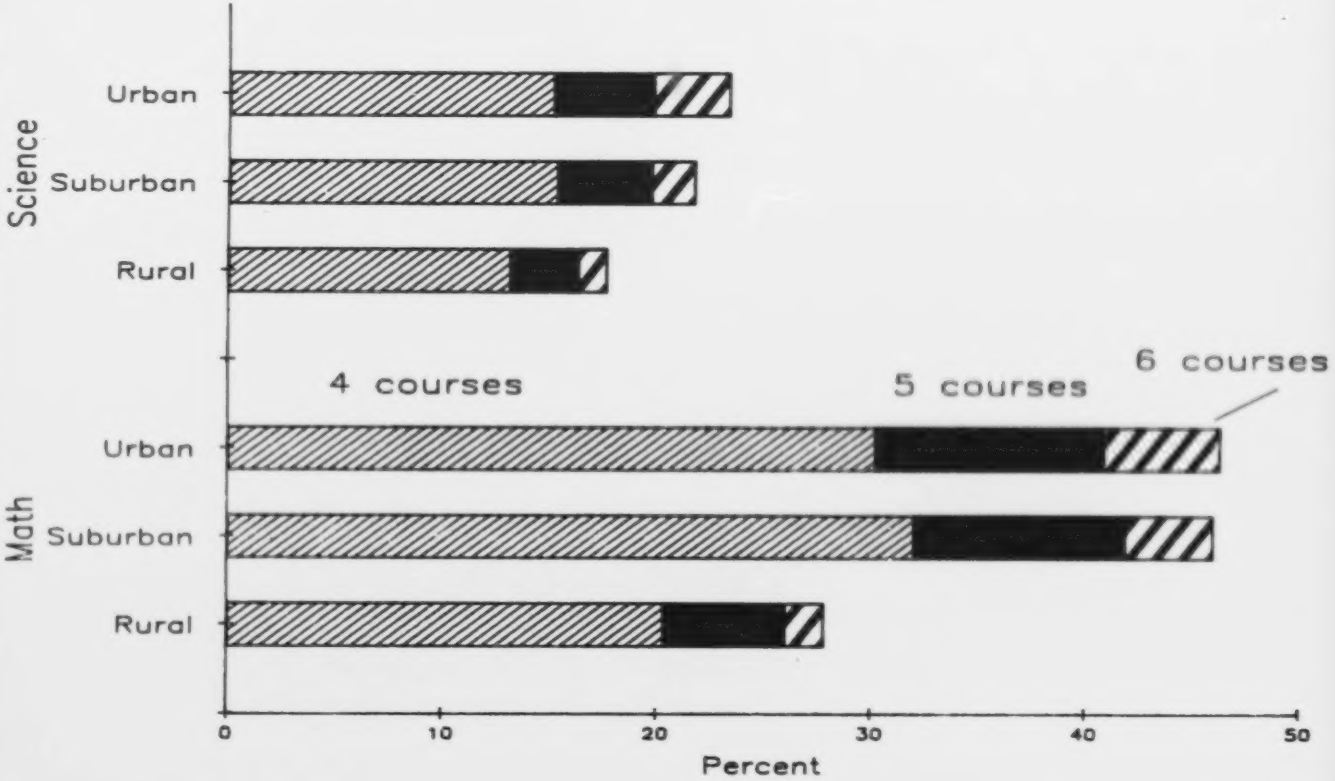
High school teachers having received a Bachelor's or higher degree, 1982



Source: (3).

Figure 3

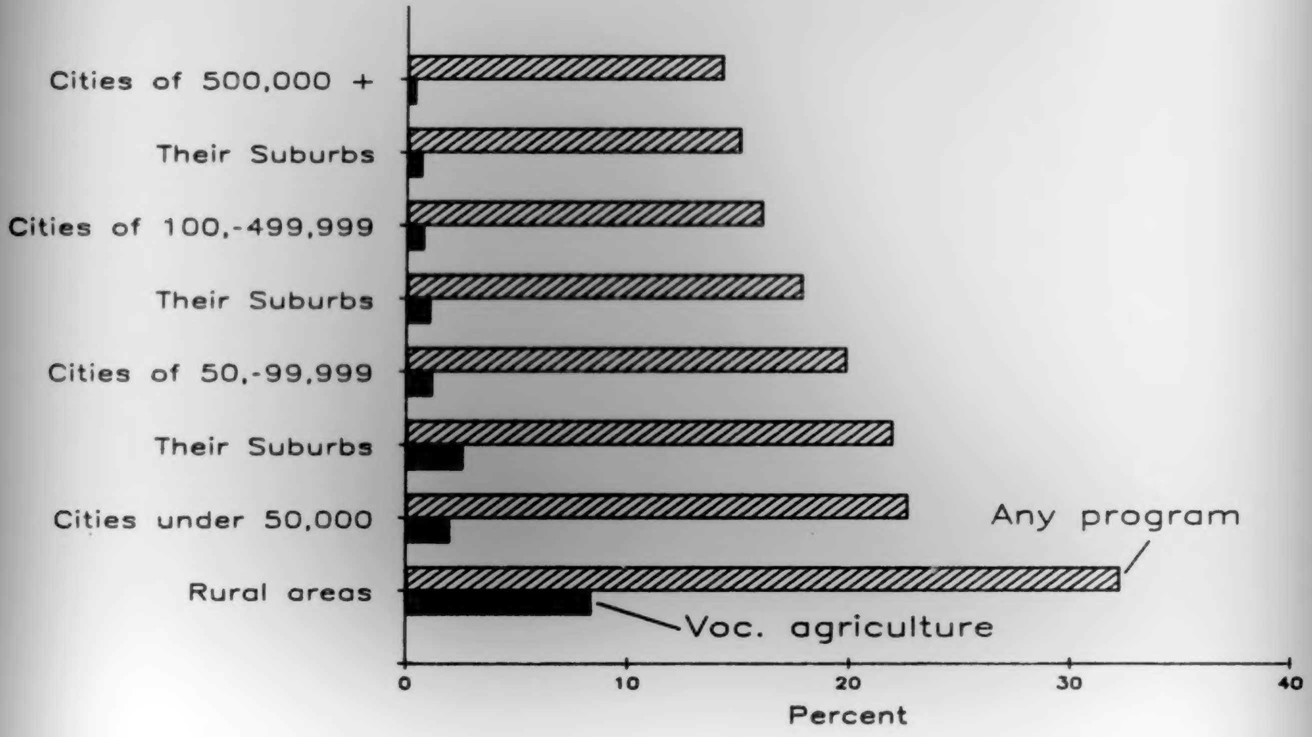
High school seniors who took 4 to 6 science or math courses, 1982



Sources: (4, 24).

Figure 4

High school seniors who took at least three occupationally specific vocational education courses, 1982



Sources: (11, 16).

Chapter 16

THE SIGNIFICANCE OF COMMUNITY DEVELOPMENT TO RURAL ECONOMIC DEVELOPMENT INITIATIVES

Vernon D. Ryan

Abstract. Community development takes place when local residents work together to improve the economic situation of the entire community. Community development efforts are especially important to the revitalization of rural America's economy. One of the most tangible benefits of such efforts is that they can contribute to the success of local economic development initiatives. This chapter discusses the application of community development principles to economic development activities.

Two rural communities recently faced virtually identical situations. In the first, a former resident had left a substantial sum of money in a trust to be used for upgrading specified community services and facilities. The only stipulation was that the community match the amount through private donations and fundraising activities. The second community faced a similar challenge. All that was necessary to receive a coveted grant for certain economic development projects was to match the amount of the grant using local resourcefulness. Although the second community was larger than the first, its residents were required to come up with less money. These two communities, when confronted with similar challenges, displayed remarkably different responses. In the first community, local residents, businesses, and organizations immediately responded to what they viewed as a challenge to the entire community. In a matter of weeks, pledges and donations had exceeded the amount required by more than 30 percent. Meanwhile, the second community was thrown into turmoil trying to decide who should be responsible for matching the grant money. In the end, they fell far short of the amount required and, subsequently, failed to receive the grant.

This illustration is only one of many that could be used to point out the importance of how residents of a local community respond to opportunities related to economic development. The response of local residents to such circumstances is called community development. In the following discussion, community development is examined within the context of rural economic development. The revitalization of rural America depends on a combination of economic and community development activities. If rural economic development and growth are to be realized, a high level of community development is necessary as demonstrated by the first community illustrated. Communities like

---

Vernon Ryan is a professor in the Department of Sociology and Anthropology, Iowa State University, Ames. The author thanks Willis J. Goudy for his contribution to this chapter. However, the author takes full responsibility for its content.

the second one discussed above need assistance to improve the capabilities of local residents on matters involving economic development. Use of community development principles in such cases can make a big difference.

The Meanings of Community and Economic Development

The term community development refers to purposive efforts of a group of people in a community to improve its social, economic, or cultural situation (3).1/ Three important components are included in this definition. First, community development has to do with the process devoted to local improvement. Even if efforts fall short of their specific goals, community development will have occurred. Second, community development is public oriented in the sense that a group must be involved rather than a single individual, and potential beneficiaries must include individuals not participating in the process (25). In this sense, community development is directed toward improvements that can be classified as collective or public goods. The third condition is that participants in the process are residents of the community in question. Outside people may be involved (for example, State officials, private consultants, financial brokers), but their participation is limited and they serve primarily as facilitators to the overall process.

To appreciate the importance of community development to economic development initiatives, the latter needs a definition. Economic development pertains to any attempt to increase the capacity of a local area to generate income and employment in order to maintain, if not to improve, its economic position (24). Like community development, economic development refers to local improvement. The focus of such effort, however, is limited to the economic sector. Programs to increase jobs, incomes, and productivity are examples of economic development. Other projects that seek to improve or expand local infrastructures (roads, buildings, water and sewer systems) for sustained economic growth are also classified as economic development.

While community development is, by definition, oriented to local concerns, no such restriction is placed on economic development. Through economic development, a single individual or business can show profits without others sharing in the outcome. A dominant employer in a community may employ residents on a part-time basis for minimum wages and benefits. While company profits may indicate community economic growth, the community at large may not benefit if the labor force all earn minimum wages and work for only 20 hours per week. In effect, there is no assurance that economic development leads to a collective or public benefit.

Community development is instrumental to the success of economic development. Of particular importance to community development are the notions of who participates and who benefits. Community development can serve as a guide to economic development activities, making certain that the process is in a direction favorable to public rather than private concerns (26). By including the public in the process, community development encourages equity in the distribution of outcomes.

1/Underscored numbers in parentheses refer to sources listed in the References Section at the end of the chapter.

The need for local participation in economic development activities is partially an issue of political philosophy. New Federalism, with its transfer of power and decisionmaking from the Federal to State and local levels, is consistent with community development's reliance on local participation. To implement economic development activities without local participation would be inconsistent with the current political philosophy.

Beyond philosophy, other reasons can be identified that support the involvement of local people. The term "local capacity" is often used to describe the ability of community residents to identify and solve local problems, and to take advantage of opportunities. Local capacity is closely associated with citizen participation. Broad-based participation builds and strengthens local capacity (9). With a high level of local capacity, communities are more likely to take advantage of economic opportunities.

Participation of local residents in economic development is important for another reason. In the broader context, economic development is a means to better economic conditions and, subsequently, a better quality of life. No one can deny the importance of economic well-being to quality of life, but it alone does not guarantee a more fulfilling life. Another means of improving quality of life is through social well-being, or self-actualization, that is, providing opportunities for individuals to realize and utilize their unique abilities. As social psychologists have demonstrated, participation in community-related issues becomes a vehicle to enhance self-actualization (24). Economic development is an illustration of a community-related issue, leading Wilkinson to conclude that "community development (and its associated requisite for local involvement) is needed to realize the potential social well-being benefits of economic development" (27).

In the final analysis, community development improves the chances that economic development efforts will lead to positive outcomes. Since community development involves local residents in the process, it also gives greater assurance that positive outcomes will be long lasting, and that future economic development activities will be forthcoming because of strengthened local capacity.

Recent Changes in Rural America

We all have our own image of rural America. Some think of it as the symbol of America's tradition where all of the virtues of our heritage have been left untouched through Jeffersonian values, a simple lifestyle, and strong neighborly ties. Not surprisingly, most of these people are against changing rural America. Others see it more as a curious remnant of the past, and no longer suited to today's sophisticated world. To them, the sooner rural America catches up with the rest of the world, the better.

Personal sentiments aside, reality verifies the fact that rural America is changing. Recent changes in the economic sector have led to numerous problems. Agriculture, once the dominant economic force in virtually every rural region of the nation, has been adversely affected by shifts in export markets and an inability to compete with other exporting countries. The same is true for many of the energy-related extractive industries (oil, gas, coal), and manufacturing and textile businesses that moved to rural areas during the 1970's because of their abundant supply of labor.

In agriculturally dominated areas, farm foreclosures and bank failures have become all too common. The ripple effect has moved steadily outward, affecting virtually every aspect of local economies. Farm implement dealerships and other businesses relying on the agricultural economy were first to feel the impact; other local retail businesses such as grocery stores, auto dealerships, and apparel businesses eventually experienced major declines in volume of trade (22). Local governments also felt the impact through rapidly declining taxable values of property and increases in tax delinquencies (23). Overall, many rural businesses and communities have been adversely affected, not to mention the personal and family stress resulting from such hardships.

As economic conditions worsened, the rural population exodus, which had halted during the 1970's, resumed as rural people moved elsewhere. Today less than 25 percent of America's total population inhabits the 90 percent of land classified as rural. Nearly half of the rural counties lost population from 1983-85.

Diversity in rural America is evident by the growth of some regions, particularly in the West, Southwest, and Northeast. Growth in the tourism industry, a concentration of retirement-oriented facilities in warmer climates, and expanded recreational opportunities have much to do with this growth and the relative affluence in these areas (2). However these growing areas are more the exception in rural America than the rule. And even in areas that are experiencing growth, problems such as overburdened water and sewage systems, inadequate roads and highways, and conflicting interests between longtime residents and new arrivals are common (19). The problem is that much of rural America is confronted with major adjustments to a rapidly changing rural economy.

Rural Community Responses to Economic Problems

Kaufman's (10) definition of community serves as a guide for describing rural communities and characterizing their responses to economic problems.[2] He includes three interrelated properties--territory, organization, and action--in his definition. The territorial property represents a community geographically as an area of land with precise boundaries. Designations of communities on a road map or as political units of government are common references to this property. In rural areas, communities cover relatively large areas of land. The dominance of agriculture, mining, and forestry, all requiring large areas, obviously have much to do with this feature. The sparse settlement of land associated with these economic enterprises contributes to the small populations of rural communities.

The organizational property pertains to the community's concentration of organized units that are available to satisfy the needs and interests of local residents. Businesses located on Main Street are part of the organizational property that exists to satisfy economic needs; a local hospital satisfies medical needs; and schools are responsible for educating residents. Some communities have a highly complex organizational make-up as characterized by numerous specialty stores, schools that offer courses in highly technical areas, and hospitals serviced by a cadre of medical specialists. Others offer very little diversity.

---

[2] Hereafter reference to rural communities will include territories surrounding incorporated towns and their inhabitants (i.e., farm and nonfarm residents) on grounds they too are members of the social and economic system of the local area.

Rural communities have a lower level of organizational complexity than do urban areas. They typically have fewer medical specialists per capita, smaller and less specialized retail areas, and schools that offer less variety in their curricula when compared to urban areas. They also rely more on part-time governmental officials. Urban officials, meanwhile, are supported by a specialized staff including development experts who are in a favorable position to seek State and Federal grants for economic development (11, 28). The limited organizational complexity of rural governmental units restricts their abilities to respond to local economic development needs.

The third community property is based on the actions or collective behavior of local residents in their attempts to maintain or improve local conditions. When living in close proximity to one another and relying on the same organizations, residents are bound together by a mutual interest that leads to collective behavior. Basically community development, as previously defined, has to do with the manner in which issues are addressed behaviorally by community residents.

Local economic development is reflected through the activity property of a community. According to one position (15), it is useful to think of communities as "growth machines" where local elites recognize the mutual benefits anticipated from growth and behave accordingly. The success of pro-growth actions of local elites is especially apparent in cities, but in many cases, at the expense of the competing rural communities who lose out in their attempts to acquire external resources for economic development purposes.

The level of activeness in a community has an important affect on its ability to obtain funds to promote economic development. In a study completed in Pennsylvania, economically distressed communities with high levels of activeness were found to have received more development funds than did distressed communities with low levels of activeness (13). Activeness in this case referred to internal community actions such as passage of zoning ordinances and submitting applications to become a distribution center for the Congregate Meals Program. In a study of Wisconsin rural communities, activeness was used to refer to external ties and contacts that local elites had with metropolitan centers (14). Again, the results showed that high levels of activeness was associated with greater participation in Federal and State grant programs related to economic development. Activeness, whether used to refer to internal or external community contacts, seems, therefore, to have a positive impact on a community's ability to obtain financial assistance for economic development. Because of the importance of this community property to economic development, external assistance may be needed for rural communities that are experiencing low levels of activeness.

Improving Local Responses to Rural Economic Problems

Under favorable conditions, rural communities plan and implement their own economic development efforts through self-directed community development activities. When faced with economic problems or opportunities, residents respond together as defenders and promoters of their common interests. Through community development, alternative strategies are evaluated, decisions made, and actions taken in ways consistent with the welfare of the total community. Perhaps a local industrial corporation is formed, or a decision is made to offer tax abatements to local businesses who expand their operations. Whatever the outcome, local involvement is instrumental to the process.

Many rural areas today, however, are experiencing conditions that discourage local initiative. Rural economies have undergone major transformations because of circumstances beyond local control. Their impact is reflected in sharp declines in the availability of local capital. As businesses struggle to survive, the local tax base of many rural communities has eroded to the point where local governments find themselves without the capital necessary to stimulate economic growth. Selective outmigration of youth and young adults due to economic conditions adversely affects the human resources available to provide local leadership. Together, these conditions cultivate a situation where external assistance is necessary if rural economic development is to occur.

Historically, the Federal Government has played a major role in providing assistance for rural economic development.3/ Because of its overwhelming influence in virtually every rural region of the nation, agriculture, in years past, received most all of the Federal Government's attention when it came to economic development. This changed somewhat as rural areas diversified, creating a larger mix of Federal programs but with little evidence of a coherent rural economic development policy. As a result of increased diversity among rural areas, many economic development initiatives have been turned over to State Governments during the 1980's which, for the most part, have been slow to respond because of limited funds and delays necessary to restructure agencies and programs.

As a rule, rural economic development programs--at both the Federal and State levels of Government--concentrate on offering financial assistance. Capital subsidies frequently are provided through loans and grants to expand or diversify local economies, and to promote local investments in community services and facilities. In some cases, prospective entrepreneurs are offered venture capital that is unavailable through the normal banking system because of the high risk associated with newly formed businesses. All of these programs are based on the assumption that limited capital is a major obstacle to rural economic development.

In financial-oriented programs, community development is seldom included as a specific program objective. At best, community development serves as a guiding principle or philosophical statement to emphasize the importance of local input,

---

3/ See Rasmussen (16) for an historical overview of rural development programs and Long, Reid, and Deavers (12) for a description of the U.S. rural policy formulation process.

or as part of the implementation process to ensure that subsidies are used in accordance with locally defined priorities and needs. This makes community development one of the more ambiguous sections of economic development programs.

Without denying the importance of programs offering financial assistance, it is becoming increasingly more obvious that capital is not the only barrier to successful rural economic development initiatives. To be effective, rural communities need greater access to information. In advanced nations, information is as important to production as is capital. But like capital, information is not equally distributed; high costs associated with the distribution of information leave rural areas at a disadvantage. When compared to urban areas, rural communities have less access to information on matters important to economic development. As examples, rural communities are at a disadvantage when it comes to information on topics such as recent innovative business practices, prospective product markets, or existing Federal and State programs that offer financial assistance for local economic development.

Another barrier to local economic development has to do with the capacities of communities to respond to local situations and problems. Capital and information alone will not ensure the emergence of local economic development unless residents are able to work together and motivate others to create an environment favorable to successful economic activities. In effect, it means helping communities to create their own comparative advantages through common purpose, self-initiative, and rational actions.

Rural economic development initiatives that address problems associated with limited information and ineffective capacities to respond to local situations are generally referred to as community development programs. Although fewer in number when compared to programs offering financial assistance, such programs are every bit as important to rural revitalization. Admittedly, community development programs are more removed from the criterion of immediate profitability, which makes it difficult to demonstrate their relevance to local economic development. They also are less visible, less immediate, and less predictable in their consequences, making evaluations of their impact more complex when compared to capital investments. In spite of these formidable problems, local economic development outcomes will depend to a great extent on the availability and success of such programs.

Table 1 (at the end of chapter) presents an overview of community development goals and objectives along with illustrations of methods to facilitate local economic development. Two community development goals are identified for economic development policies and programs: including local residents and organizations in economic development activities, and strengthening local capacities to assure effective responses to future situations involving economic development. As goals, they represent broadly defined mission statements. The first goal is based on arguments supporting New Federalism and the recognition that participation enhances an individual's well-being. The second goal, strengthening local capacities, is an attempt to improve the quality of outcomes resulting from future economic development activities. This goal has to do with capacity-building efforts; with strong capacities, communities can build on what exists by devising new structures, processes and innovations to create new strengths. In effect communities become self-driven, requiring little if any outside assistance.

Rural economic development policies and programs should be implemented in ways consistent with these two community development goals. Economic development, to be successful, requires involving residents and organizations that play important roles in community activities and decisions. Combined with resources provided from outside the community, the involvement of local residents and organizations will give direction to changes that are consistent with local interests. At the same time, greater consideration of differing needs and interests within communities is assured when local participation is present.

The three community development objectives represent more specific statements of the two goals. The first objective is to broaden the base of local input. This objective coincides with the previously stated goal to involve local residents and organizations in activities related to economic development. The remaining two objectives include efforts to strengthen local capacities in future situations. They include efforts to improve the quality of local input and increase the knowledge base on issues related to economic development.

Specific methods are listed in Table 1 as examples of ways to accomplish each objective. When using these methods in economic development, a specialist from outside the community is usually called upon to assist local residents. As an outside expert in community or economic development, this person normally serves as an information broker. To overcome the relative isolation of rural communities, information brokers are needed to serve as a linkage between knowledge providers and local decisionmakers. It is important that the individual also has the ability to know what is needed for expanding local capacities. The Cooperative Extension Service, through a partnership with the U.S. Department of Agriculture and the land-grant university system, serves as a model where local and area Extension staff have direct access to research findings. This linkage also leads to educational programs that help residents to understand local economic development within a broader national and international perspective. As economic decisions are made locally, these broader issues can be taken into consideration. The following methods are suggested as ways specialists can facilitate local economic development activities.

Action research is useful for broadening the base of local participation in rural economic development. It is a method whereby residents collaborate with economic development specialists to plan, conduct, analyze, and utilize research on issues pertinent to local economic development. The overriding assumption of action research is that usable knowledge is more likely to result from a process that involves local participants. Community surveys that identify local economic problems or needs are a common starting point in action research (21). Survey results are interpreted by team members and used in selecting specific economic development strategies. As representatives of the community, residents involved in action research make certain that all sectors of the community are considered when preparing for economic development. With personal knowledge and interest in the community, they provide a local perspective that is not available through economic development specialists. Specialists, meanwhile, contribute by way of their expertise in research methods, or providing additional data on other communities that offer a comparative perspective. The advantage of action research is that everyone makes a unique contribution to the process, and the final decision or outcome should be better as a result of their involvement.

To improve the capacities of rural communities to respond to local economic situations, the quality of local input must be addressed. *Leadership development* is needed for improving the quality of local input in rural economic development. It is generally understood that leaders are not born as leaders (7). Instead, they are nurtured and trained, formally and informally, through personal experiences and opportunities. Formal training through leadership development is critical to rural economic development. To be successful requires local leaders who are able to mobilize others to work together in activities associated with economic development. This requires skills and knowledge in areas such as team management and effective communications. In addition, rural communities are in need of leaders who know how to work with others outside local communities since rural economic development will increasingly require such activities. Finally, in rural areas that continue to lose potential leaders through migration, leadership development needs to be supplemented with retention strategies that encourage candidates for leadership positions to remain in their communities.

Entrepreneurship refers to the propensity of local populations to initiate business enterprises (5). If rural economic development is to be effective, new businesses must be started through local initiative. As a synonym for innovativeness and hard work (17), entrepreneurship needs to be encouraged and strengthened through policies and programs that promote economic self-development. Combined with more effective leadership, increasing the number of entrepreneurs would improve the quality of local input associated with economic development.

The acquisition of knowledge is crucial to successful rural economic development. Both process-oriented and technical-oriented knowledge are needed. The former refers to information on procedures useful for making and implementing decisions on a public issue. From a community development perspective, local economic development is a public issue. *Social action* and *conflict management* are illustrations of process-oriented methods. Social action is useful as a guide that identifies important steps, needed resources, and the involvement of key individuals in planning economic development initiatives (1). When consensus is lacking, conflict management is needed to guide the local community through times of dissent (18). These and other process-oriented methods should be included as content in leadership training, and also need to be shared with other residents who are involved in economic development to make certain that such ventures are viewed as public issues.

Technical-oriented knowledge must be available to rural communities, if local economic development is to occur. Federal and State agencies, universities, and private organizations are all involved in collecting, analyzing, and interpreting data pertaining to economic development. Their efforts have resulted in new knowledge on an almost continuous basis. However, such information is of little use unless it is accessible to rural communities. Methods relying on direct contact between information brokers and rural community residents are useful, such as through seminars and workshops (8). Recently advanced telecommunications systems (6) also need to be used to transfer information related to rural economic development. These newly developed methods, such as satellite uplinks, have the potential of minimizing the influence of distance that adversely affects rural economic development outcomes.

In summary, adverse conditions in rural America have created a need for external assistance in economic development activities. Financial assistance is a common form of aid that should be continued. Additionally, however, assistance is needed to increase the knowledge base of rural communities on topics related to economic development, and local capacities to ensure more effective responses to economic development possibilities need to be strengthened. Specific methods are available to accomplish these objectives.

Expanding Territorial Boundaries

The discussion, thus far, has dealt with external assistance that is intended to enhance the efforts of local residents in economic development activities. Presumably, the territorial boundaries remain fixed, with individuals in separate geographic areas working to attain unique economic development objectives. Another alternative is to regionalize the efforts of residents from contiguous communities, thus changing the territorial property in an attempt to accomplish identical economic development objectives. Community development then becomes an important vehicle for identifying and accomplishing common objectives. School consolidations, areawide industrial corporations, and regional governmental bodies are a few examples of regionalization.

It has been difficult for rural communities to move away from the Darwinian model of competition and struggles among communities. As rural economies worsened, competition increased to the point where communities mortgaged their futures in attempts to cannibalize other communities by offering excessive tax abatements to prospective industries and businesses. Free space, access roads, and water and sewer hookups were offered as incentives, all at the expense of the local taxpayers. In the end, both the community of origin and the community of destination ended up losing as a result of such competition.

To many, the notion of rural regionalization is long overdue. A steady loss of population in many communities has burdened the local tax base and shifted demands for services and facilities (for example, fewer children result in lower demand for school classrooms, but higher demands for retirement centers brought on by a greater number of elderly). In a recent study of rural Iowa elected officials (20), over 70 percent said they were interested in working with at least one of their neighboring communities on economic development ventures. As local officials, they no doubt recognized the roadblocks before them in trying to revitalize local economies on their own.

Rural regionalization, to be effective, needs to evolve out of the activity properties of single communities. With the assistance provided from enabling policies and programs that would offer incentives for regional efforts, local discussions could be used as the catalyst to evaluate, prepare, and facilitate regionalization alternatives based on their relevance and acceptability at the local level. The next step would be to bring representatives from different communities together to discuss alternatives. Out of this process should evolve a mutual understanding and agreement on regional objectives and procedures.

The concept of community development serves as the foundation of the regionalization strategy proposed here. Heavy emphasis is given to the importance of local activity. With proper incentives (like special funding for regional activities), communities would be more willing to join together with other communities, thus extending the activity in individual communities across the entire region.

Regionalization based on community development principles is in sharp contrast to Federal regional programs adopted during the 1960's. Basically the boundaries of regions were legislated in the first attempt at rural regionalization on the assumption that they were homogeneous entities. With the diversity existing in rural America today, this top-down approach to defining regional territories makes little sense. Rather, the alternative is to let local communities identify regions according to common interests and problems. Seemingly, this makes for a more favorable and lasting regional relationship.

Conclusions

Community development is the preferred approach to economic development. This preference is based on the importance assigned to the principles of local involvement and public interests, both of which are emphasized in community development. Positive outcomes are more likely to result from economic development efforts when these principles are adopted.

Policies and programs to stimulate rural economic development should be complemented with efforts that emphasize community development principles. This position is based on the assumption that every community has the latent potential to mobilize on concerns of common interests. The challenge to policies and programs is to stimulate this potential by incorporating methods that strengthen local capacities during the course of economic development. At the same time, economic development outcomes would be more in line with public interests and needs. The central goal of policies and programs should be to recognize and use the synergism in community and economic development.

References

1. Beal, George M., and Daryl J. Hobbs. "The Process of Social Action in Community and Area Development." Cooperative Extension Service, Iowa State University, Ames, Iowa, July 1986, pp. 1-14.

2. Blakely, Edward J., and Ted K. Bradshaw. "Rural America: The Community Development Frontier." *Research in Rural Sociology and Development*, Frank A. Fear and Harry K. Schwarzweller (eds.), JAI Press, Inc., Greenwich, Connecticut, 1985, pp. 3-29.

3. Christenson, James A. "Community Development." *Rural Society in the U.S.: Issues for the 1980's*, Don A. Dillman and Daryl J. Hobbs (eds.), Westview Press, Boulder, Colorado, 1982, pp. 264- 272.

4. Cigler, Beverly A. "Small Cities' Policy Responses to the New Federalism." *Administering the New Federalism*, Lewis G. Bender and James A. Stever (eds.), Westview Press, Boulder, 1986, pp. 160-181.

5. Coffey, William J., and Mario Polese. "Local Development: Conceptual Bases and Policy Implications." *Regional Studies*, vol. 19, no. 2, 1985, pp. 85-93.

6. Dillman, Don A. "The Social Impacts of Information Technologies in Rural North America." *Rural Sociology*, vol. 50, no. 1, 1985, pp. 1-26.

7. Extension Committee on Organization and Policy/Community Resource Development--Public Affairs Subcommittee: National Extension Task Force on Community Leadership. "Community Leadership Development: Implications for Extension." The Northeast Regional Center for Rural Development, University Park, PA, n.d., pp. 1-36.

8. Gamm, Larry, and Frederick Fisher. "The Technical Assistance Approach." *Community Development in America*, James A. Christenson and Jerry W. Robinson, Jr. (eds.), The Iowa State University Press, Ames, Iowa, 1980, pp. 48-63.

9. Kaufman, Harold F., and Louis H. Bluhm. "Leadership Structures in Three Small City-Centered Communities." Technical Bulletin 78, Mississippi Agricultural and Forestry Experiment Station, Mississippi State, Mississippi, 1976.

10. Kaufman, Harold F. "Toward an Interactional Conception of Community." *Social Forces*, vol. 38, October 1959, pp. 8-17.

11. Lassey, William R. *Planning in Rural Environments*. McGraw-Hill Book Company, New York, 1977.

12. Long, Richard W., J. Norman Reid, and Kenneth L. Deavers. *Rural Policy Formulation in the United States*, ERS Staff Report no. AGES870203. Economic Research Service, U.S. Department of Agriculture, 1987.

13. Martin, Kenneth E., and Kenneth P. Wilkinson. "Local Participation in the Federal Grant System: Effects of Community Action." *Rural Sociology*, vol. 49, no. 3, 1984, pp. 374-388.

14. McGranahan, David A. "Local Growth and the Outside Contacts of Influentials: An Alternative Test of the 'Growth Machine' Hypothesis." *Rural Sociology*, vol. 49, no. 4, 1984, pp. 530-540.

15. Molotch, Harvey. "Political Economy of Place." *American Journal of Sociology*, vol. 82, no. 2, 1976, pp. 309-332.

16. Rasmussen, Wayne D. "90 Years of Rural Development Programs." *Rural Development Perspectives*, vol. 2, no. 1, USDA, ERS, Oct., 1985, pp. 2-9.

17. Reid, J. Norman. "Entrepreneurship as a Community Development Strategy for the Rural South." Presented at the conference on "The Rural South in Crisis: Challenges for the Future," sponsored by the Southern Rural Development Center, Atlanta, Georgia, 1987, pp. 2-28.

18. Robinson, Jerry W., Jr. "The Conflict Approach." *Community Development in America*, James A. Christenson and Jerry W. Robinson, Jr. (eds.), The Iowa State University Press, Ames, Iowa, 1980, pp. 73-95.

19. Rogers, David L. "Community Services." *Rural Society in the U.S.: Issues for the 1980's*, Don A. Dillman and Daryl J. Hobbs (eds.), Westview Press, Boulder, Colorado, 1982.

20. Ryan, Vernon D. *Research on Regional Economic Development Efforts in Iowa's Rural Counties*. The Legislative Extended Assistance Group, University of Iowa, Oakdale, Iowa, 1987.

21. Ryan, Vernon D. "The Use of Action Research in Needs Assessment Surveys." *Needs Assessment: Theory and Methods*, Donald E. Johnson, Larry R. Meiller, Lorna Clancey Miller and Gene F. Summers (eds.), Iowa State University Press, Ames, Iowa, 1987, in press.

22. Stone, Kenneth E. "Impact of the Farm Financial Crisis on the Retail and Service Sectors of Rural Communities." Presented at AAEA Symposium on Farm Debt Stress, Kansas City, Missouri, Nov. 1986.

23. Subcommittee on Intergovernmental Relations of the Committee on Governmental Affairs. *Governing the Heartland: Can Rural Communities Survive the Farm Crisis?*, United States Senate, Washington, D.C., May 1986.

24. Summers, Gene F. "Rural Community Development." *Annual Review of Sociology*, Ralph H. Turner and James F. Short, Jr. (eds.), Annual Reviews, Inc., Palo Alto, CA., vol. 12, 1986, pp. 347-71.

25. Wilkinson, Kenneth P. "A Field-Theory Perspective for Community Development Research." *Rural Sociology*, vol. 37, Mar. 1972, pp. 43-52.

26. Wilkinson, Kenneth P. "In Search of the Community in the Changing Countryside." Rural Sociology, vol. 51, no. 1, 1986, pp. 1-17.

27. Wilkinson, Kenneth P. "Social Well-Being and Community." Journal of the Community Development Society, vol. 10, no. 1, 1979, pp. 5-16.

28. Willits, Fern K., Robert C. Bealer, and Donald M. Crider. "Persistence of Rural/Urban Differences." Rural Society in the U.S.: Issues for the 1980's, Don A. Dillman and Daryl J. Hobbs (eds.), Westview Press, Boulder, Colorado, 1982, pp. 69-76.

Table 1--Community development goals, objectives, and suggested methods for use in local economic development

Goals

Include local residents and organizations in economic development activities. Strengthen local capacities for more effective responses to future economic development situations.

Objectives	Methods
Broaden base of local input	Action research
Improve quality of local input	Leadership development; training entrepreneurs
Increase knowledge base	
- Process-oriented	Social action; conflict management
- Technical-oriented	Seminars; workshops; telecommunications

CHAPTER 17

CHOOSING A RURAL POLICY FOR THE 1980's AND '90's

Kenneth L. Deavers

Abstract. The 1980's have renewed a decades-long process of urban growth and rural population stagnation or decline. Problems in three sectors of major importance to rural areas--agriculture, mining and energy, and manufacturing--have been the major cause of economic stress. While there is great diversity among rural areas, individual local economies tend to be specialized, depending on a few major employers and a small number of closely related industries. This situation enhances the role of States in developing rural development programs and the role of rural community leadership in implementing such programs. However, the widespread nature of and externalities resulting from rural structural change provide a rationale for a Federal role. That role includes creating a macro environment conducive to economic growth, facilitating multi-State or multi-community approaches to solving rural problems, and assuring adequate levels of investment in human resources. The Federal Government also has a comparative advantage in providing information and conducting analyses of broad national and rural economic changes that help to shape policy.

Much attention was given to the economic success of rural America in the 1970's, with the rural population turnaround being the most often cited symbol of a rural renaissance. By the end of that decade more than 3.5 million people had moved from urban to rural areas in search of better places to live, to work, and to raise a family or to retire. There were people who worried about whether many rural areas had adequate physical and institutional infrastructure to accommodate their rapid rates of population growth without serious ecological and environmental damage.

With 20-20 hindsight, it is a problem about which we need not have been as concerned. The 1980's have renewed a decades-long process of urban growth and rural population stagnation or decline. The latest estimates from the Current Population Survey show a net outmovement from rural to urban places in 1985-86 of 632,000 people. This is a larger outmovement than the annual average of either the 1950's or 1960's.

National concern has recently focused on financial problems in the farm sector and the resulting displacement of farm households who have been forced out of farming for financial reasons. At the same time, employment in rural mining and energy counties declined by 9.5 percent between 1979 and 1986,

---

Kenneth Deavers is Director of the Agriculture and Rural Economy Division, ERS.

and rural manufacturing counties showed employment growth of only 2.7 percent in the same period. Even rural service sector employment growth has been slow compared with the 1970's or with service growth in urban areas during the 1980's. And, the rural service sector remains predominantly consumer services, catering to local consumers not national markets.

Relatively greater dependence on goods production--the kinds of manufacturing industries in rural areas and the occupational structure within these industries--and sharp declines in natural resource-based industries and agriculture, have been the principal causes of economic adjustment and stress in rural America in the 1980's. Indicators of rural economic adjustment include:

- Nonmetro employment grew one-third as fast as metro employment between 1979 and 86 (4 vs. 13 percent), a reversal of the 1970's when nonmetro employment grew more rapidly.
- For 1986, the nonmetro unemployment rate averaged above 9 percent, nearly 3 percentage points higher than the metro rate. The nonmetro unemployment rate has fallen more slowly than the metro rate during the current economic expansion, leaving over 1,000 nonmetro counties with annual average unemployment rates of 9 percent or more. Higher nonmetro than metro unemployment rates are a reversal of the historical pattern established in the 1960's and 1970's.
- The nonmetro poverty rate was 18.3 percent in 1985 compared with 12.7 percent for metro areas. While the metro rate has fallen during the recovery from the recession of the early 1980's, the nonmetro rate has been virtually unchanged. Counties with high poverty rates are disproportionately located in the rural South.

Rural Economic Diversity

At the beginning of World War II most of our rural citizens lived and worked on farms. But an agricultural revolution, fueled by changing technology and facilitated by public policy, created a surplus of farmers, leading to a massive exodus from the sector. Between 1945 and 1970, an average of 120,000 farms was lost annually, leading to an average yearly farm population decline of 600,000. In the end, we were left with less than one-third as many farmers as we began with--but farming remained primarily a family owned and operated business. By 1985, even after nearly a one-third decline in land values from their 1982 peak, average net worth of farm families was about $250,000 and average farm household incomes were greater than $36,000. As a result, poverty among farmers now represents only about 10 percent of rural poverty.

In spite of significant declines in agriculture and other extractive industry employment, 25 percent of our citizens remain in rural areas. This is the result of a dramatic transformation of the rural economy. In the 1960's and 1970's a growing manufacturing sector provided new employment for rural workers, particularly for a generation of rural women whose labor force participation grew rapidly. During the same period, rural areas also participated in the growth of the private service economy, which between 1969 and 1979 produced 55 percent of all the new jobs in rural America. Rural people now make their living from a wide-ranging set of activities not unlike those of urban Americans. Manufacturing, trade, and services are the dominant industries in rural areas.

The transformation of the rural economic base from a primary dependence on natural resource activities, including agriculture, to a dependence on manufacturing, trade, and services has increased the diversity among rural areas. Thus, a wider range of external factors, including national business cycles, now influence the growth and viability of rural communities. Still, Federal policy directed toward rural areas remains focused mainly on the agricultural sector. In 1986, total Federal spending on agriculture programs was nearly $22 billion, including cash transfers to the sector of about $12 billion. This spending now provides a major share of net cash income for the farm sector, and it plays an important role in maintaining the income of many farm-dependent communities. Unfortunately, no policy directed primarily toward a single sector can address the widespread structural adjustment problems currently being experienced across a large number and diverse group of manufacturing-dependent and natural resource-based rural economies. And the large cost of Federal programs directed to agriculture leaves little room in the budget to consider adjustment assistance programs for distressed rural areas.

Another aspect of rural diversity is that, in spite of widespread decline in rural manufacturing, agriculture, and natural resource based economies, other rural areas have done relatively well. Job growth in the rest of rural America has exceeded 9 percent. Rural recreation-retirement counties have grown in population at more than four times the rate of other nonmetro counties, capturing most post-1980 rural population growth. This diversity of experience makes it much more difficult to design a national rural development policy. Some rural areas are experiencing stress which may justify assistance, others are not. This situation enhances the role of States in developing and delivering programs tailored to the situation of individual rural communities, and strongly implies that targeting of assistance is important.

Rural Economic Specialization

Post World War II farm consolidation improved the incomes of most families that remained in farming, and rural industrialization provided better jobs and higher incomes for many other rural workers. Other changes were also taking place in the 1950's and 1960's that benefited rural areas. Major public programs were undertaken to modernize rural life--expanded rural electrification and rural telephone service, improvements in rural educational systems, better transportation linkages to urban markets, upgrading of rural housing quality, etc. Collectively, these changes meant living in rural America did not necessarily imply social or cultural isolation. But most of our rural territory remains sparsely settled with few towns of more than 5,000 or 10,000 people, and most rural economies remain relatively specialized. In fact, the process of local economic development in rural communities after World War II involved moving from one economic specialization to another, as the dominance of natural resource-based industry receded. Many rural communities proved too small to achieve significant diversification of their economic base. The overall result was greater diversity among rural areas, but continued local dependence on a few major employers in a small number of closely related industries.

In the 1970's specialization seemed to be an asset for many rural areas. For example, mining and energy counties, riding the wave of rising energy prices and oil embargoes, experienced very rapid gains in employment and income. The economies of many other natural resource-dependent and farming areas were likewise buoyed by boom times in their basic industries. But boom and bust cycles have been frequent in the history of mining, forestry, and agricultural communities, and this time has been no exception.

Over the longterm, economic specialization is a serious handicap for rural areas, because structural decline occurring in a single sector can cause widespread dislocation threatening the viabilty of the entire community--there are simply no other expanding sectors to take up the slack when decline begins. For rural areas collectively, the problem of specialization is made worse by the fact that entire regions may share a common rural economic specialty. Thus, stagnation and decline are not confined to a small number of rural counties.

It is unrealistic for national rural policy to have as an objective the widespread substitution of diversified rural economies to replace the specialized economies that now exist. Although some small rural economies will be successfully transformed from their current declining specialization to another with brighter prospects for future growth, most natural resource and agricultural counties will not make that transition. Because decline is endemic in some rural regions, regional rather than local development strategies and policies are more likely to succeed. Thinking of several adjacent communities as "neighborhoods," each with a specialized role to play in the economic development of the region, might make it possible to achieve some urban scale and agglomeration economies, thus enhancing the range of feasible development opportunities. But achieving meaningful regional collaboration on the location and joint funding of public facilities (e.g., hospitals and industrial parks) and services (e.g., police and fire protection) may be as difficult as getting States to stop their bidding wars for the location of branch plants of major national or international firms.

For many nonmetro counties adjacent to growing metro areas, their location is their most important developmental asset. Metro adjacency has been a significant factor in the growth of nonmetro areas throughout the 1960's, 1970's, and 1980's. How nonmetro areas deal with the process of becoming residential communities of extended metro areas, and the strategies they choose for capturing some of the employment generation potential of adjacency will determine how gains from development get distributed. Clearly, in regions like the South and West with strong metro growth processes underway, many nonmetro areas will benefit from positioning themselves as an integral part of this growing economic system. Residential preferences should reinforce the attractiveness of adjacent nonmetro counties, just as they continue to play a role in the rapid growth of rural retirement/recreation areas.

Rural Industrial Change

The industrial restructuring underway in the rural United States has significant implications for future growth. In 1985, nonmetro counties had 21.5 percent of U.S. employment. The National Planning Association has recently published estimates of U.S. employment growth to the year 2010. They forecast that 86 percent of all new full-time and part-time jobs will be created within the boundaries of currently defined metropolitan areas. This implies a 10-percent decline in the rural share of U.S. employment to about 19 percent. It is likely that most of this adjustment will be concentrated in areas where the economic base is already undergoing structural adjustment.

If it is true that excess capacity is the underlying problem in the agricultural sector, then future shrinkage of the sector seems unavoidable. No foreseeable combination of increased domestic and international demand is likely to validate the existing aggregate scale of farming activity, and continued gains in productivity may further add to the overcapacity problem. Thus, many existing farmers (and considerable capital) will be squeezed out. For the sparsely settled Great Plains, and western Corn Belt, it is going to be difficult to find a policy to reemploy most of these displaced farmers and their household members in new economic opportunities within the region. This was also true throughout the 1950's and 1960's, but the scale of adjustment now facing that region is much smaller, if only because so many people have already left.

There will be some opportunities for sustained growth in the region's larger rural communities, and smaller communities closely linked to its metro areas--in part because income levels will continue to be sufficient to sustain a viable consumer-services sector. There are also likely to be individual cases where processing of agricultural commodities can be successfuly decentralized into smaller communities, particularly where unique market niches for specialty products are identified and exploited. And the startup of new entrepreneurial ventures unrelated to the agricultural base will mean success for some displaced workers and their communities. However, these opportunities for growth will not be sufficient to stem the long-term decline in population of most of the nonmetro farm-dependent counties in the region. A similar assessment of future growth prospects for most natural resource-based rural areas seems realistic.

The goods-producing sector of the United States economy has been a relatively constant share of GNP for over 30 years. But employment in manufacturing has declined in absolute and relative terms for much of the same period. Despite this national trend, nonmetro counties, in the South and East particularly, captured an increasing share of goods-producing employment during the 1960's and 1970's. However, given continued adoption of productivity enhancing technology and increased foreign competition, goods-producing industries in nonmetro areas have experienced serious employment losses in the 1980's.

In the short term, policies that provide protection to industries that can be modernized and become more competitive will have many advocates. But there are serious questions about how to identify specific industries and firms to assist, and it is difficult to end programs of protection once they are begun. As a result, such programs appear unlikely to promote future rural economic development. Rural prosperity cannot be achieved by propping up certain sectors or firms in an effort to protect them from a highly competitive world economy. These policies are costly--in the long run they stifle creativity and new enterprise development. Ultimately, they only postpone largely inevitable adjustments. Such policies reduce the real income of all consumers, while enhancing the real income of only a relatively small group of producers. And, where successful, they do not stem job losses because their success depends on the adoption of labor-saving technologies.

Some researchers argue that nonmetro areas will be able to compete successfully for a share of the growing producer services industry, especially in the "information age" where physical access and adjacency are presumably less important. At the moment, there is not sufficient knowledge of the locational needs and preferences of firms in that industry to assess the attractiveness of remote rural locations. Recent lagging rural employment growth in producer services, however, suggests that where a community's basic industries (especially manufacturing) are experiencing stress, producer services will not prosper. It is also true that not enough attention has been paid to the adequacy of rural telecommunications systems to meet the purely technical requirements of such firms. Again, it is likely that some individual nonmetro communities will capture producer-services employment. On the whole, however, rural service sector growth will be greater on the consumer-services side.

Political Economy of Rural Economic Development Policy

Webster defined policy as a "definite course or method of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions." The choice of a rural development policy relevant for the mid-1980's and 1990's requires that we first understand the "given conditions." The preponderance of evidence suggests that the economic and social setting in rural America that shapes future policy decisions is one of widespread stagnation in job creation, reduced rates of population growth, and substantial outmigration. Many other dimensions of development, e.g., community vitality and viability, can be expected to be negatively affected by these factors.

Knowledge of the major economic forces shaping the future of rural America provides insights about the likely importance and effectiveness of various broad alternatives as elements of a rural development policy. However, these economic forces are only one component influencing the choice of a rural development policy.

The formulation of public policy is a complex process of negotiation among many and diverse groups, each of whom has some special interest viewpoint to serve. Government programs resulting from this process often achieve broad societal goals or, help to mitigate the consequences of social problems. Effective policies are most likely when they do not seriously violate some key sets of special interests. But rural development involves public intervention to ameliorate differentials in levels of activity, growth, and rates of return between rural and urban "regions." Thus, effective rural development policy is likely to alter the status quo, pitting one set of special interests against another. To the extent that such policy appears likely to shift the outcome of national development by increasing the share captured by rural people and rural communities, political consensus is difficult to achieve in our overwhelmingly urban nation.

Mobility of resources is an important way of redressing differences in rates of return and levels of activity and growth. But the movement of people from rural areas, where opportunity is limited, to growing urban areas is also costly, and politically unpalatable. The human costs of geographic (and/or occupational) change must be balanced against the economic costs of intervention, but we are currently unable to do this in any wholly satisfactory way.

Even when political consensus is achieved on elements of a national rural development policy, it is not possible to specify with any certainty the details of a rural development strategy likely to succeed for any individual rural area. This is because many factors that contribute to successful local development are unquantifiable, and thus outside the explanatory power of current regional science. The design of locally relevant rural policy depends on a pragmatic balancing of local aspirations with realistic assessments of likely future local growth, given local resources and marketplace realities. Achieving such a balanced approach will not be possible with a national "one size fits all" rural policy. Neither is it possible with local programs based primarily on "boosterism." There is a need for cooperation among public institutions at all levels--Federal, State, and local--for effective involvement of the private sector, for marshalling information about the economic forces influencing the community and the Nation, for insight about the near-term future, and for a way of turning all of this into action programs. We have a 25-year history that suggests great difficulty in designing national rural policy with these characteristics.

Elements Of A Rural Policy

Macro Policy

The employment impacts of monetary and fiscal policy vary across regions, depending on the industrial composition of the regions. Overall, rural employment is slightly more sensitive to changes in monetary and fiscal policy than is urban employment. These differences are particularly pronounced in the nonmetro Northeast and South, and appear to be related to the relatively greater importance of manufacturing in these areas. Thus, the fact that the overall performance of the U.S. economy has been relatively weaker since the peak of the last business cycle in 1979 than it was in the two previous business cycles covering the 1970's, is a partial explanation for the relatively poor performance of rural economies in the 1980's.

The relatively greater dependence of rural economies on farming, especially in the Great Plains, is another part of poor economic performance related to changing monetary and fiscal policy. There is evidence to suggest that agriculture experiences wider swings in prices and asset values as a result of sudden changes in macro policy than the rest of the economy, accentuating the boom and bust cycle farming communities have experienced since the early 1970's.

Structural factors, including the serious deterioration in the competitive position of rural manufacturing and declining demand for the products of mining/energy industry are also important. In the two business cycles 1969-73 and 1973-79, rates of employment growth in nonmetro areas exceeded those of metro areas. But from 1979-85, the compound annual average rate of employment growth in nonmetro counties has fallen to less than one-third that of metro areas. High real interest rates and a high-valued dollar, major consequences of the monetary and fiscal policies followed by the United States since 1981 to bring inflation under control, have contributed to major financial strains in farming and competitive problems in all rural industries. The dramatic decline in the relative performance of rural economies however, seems to signal a long-term structural adjustment problem.

No set of sector-specific or community-specific rural development policies will be able to overcome slow growth of aggregate demand in the United States and worldwide, or to insulate rural communities from the effects of major changes in monetary and fiscal policies. Rural areas have a significant stake in stable macro policies that achieve the highest possible rates of overall economic growth consistent with reasonable price stability. Such policies may reduce the pace of adjustment in many rural economies, although they will not eliminate structural change. They also increase the opportunities for resources released from rural agriculture, natural resource, and manufacturing industries to be productively reemployed in new activities.

The rural economy is now an integral but distinctive part of the national and global economy. Thus, policies undertaken to achieve broad national goals have significant implications for the performance of rural economies. Education, communications, and transportation policies help to shape the future prospects for rural development. And income maintenance programs will determine the well-being of many rural poor. Rural interests are not likely to be paramount in shaping these national policies; but recognition of the unique economic, social, and institutional capabilities of rural areas is essential if they are not to be inadvertently disadvantaged by national policies.

Sectoral Policy

Public discussion of the need for and desirability of a U.S. industrial policy has largely disappeared, declining roughly in pace with the national economy's recovery from the severe 1979-82 recession and the reemergence of stronger urban growth. That recession, which hit goods-producing industries particularly hard (U.S. manufacturing lost 2.2 million jobs), followed a decade of unprecedented job, income, and population growth favoring rural areas. Rural growth came, in part, at the expense of urban areas. And the decade of the 1970's also saw serious structural problems begin to emerge in many urban-based manufacturing industries--steel, autos, etc. These experiences contributed to proposals to reindustrialize America, and eventually to the idea of a targeted industrial policy for the United States.

Such a policy, according to its proponents, would channel resources from public and private consumption into needed infrastructure, research, and capital formation. The principal concern of industrial policy was to overcome a long-term secular decline in U.S. productivity growth, which was undermining the Nation's competitive position. Tax reform and regulatory change, as well as programs to direct investment flows into specific industries and regions, were to be used to restore American industrial preeminence. There was disagreement, however, about whether the goal of industrial policy should be to accelerate the rate at which market forces shifted resources into growing industries, or whether it should attempt to support (and perhaps restore) the competitive position of declining industries and the places that depend on them.

Serious practical and theoretical questions have been raised about the appropriateness of public intervention with sector specific policies. For example, it is clear that monetary and fiscal policy have played an important role in creating the structural adjustment problems we are now experiencing. Since 1982, the Federal deficit as a percent of GNP has been at high levels, unprecedented for a peace-time, nonrecession period. Rather than finance this deficit out of domestic savings, we have relied on foreign investors. However, between 1980 and 1985 the trade-weighted value of the dollar increased by more than 50 percent, virtually guaranteeing a serious trade deficit because of its impact on the competitiveness of U.S. goods at home and overseas. The high-valued dollar also appears to have speeded up the product cycle, leading business firms to seek overseas locations for production of many goods as the only effective strategy to overcome large de facto cost increases. Whether exchange rate changes are the principal problem leading to structural decline in rural industries is an unanswerable question at this time. New labor-saving technologies may allow us to raise productivity and compete more effectively, if exchange rates fall far enough. Even so, it is unlikely that the United States will ever recover many of the jobs lost in low-skill, low-wage rural manufacturing industries such as textiles and apparel.

Other criticisms of sectoral policy have concentrated on the creation of a new and unnecessary Federal bureaucracy, on whether such a bureaucracy could pick industrial winners and losers as targets for public action, and whether such choices would be enforceable and politically feasible, even if they were possible. Clearly, industrial policy smacks of central planning, something for which there is no discernible political support.

Despite these concerns about sector-specific policy, the United States already operates one sector-specific set of programs and maintains a large public (Federal and State) bureaucracy to administer them. The sector, of course, is agriculture. In terms of future rural economic development, the relevant observation about the agricultural sector is that it is unlikely to contribute importantly to rural job creation. Farming has been a declining industry--declining as a share of GNP and in total employment since World War II--and most of the jobs in forward and backward linked agricultural industry are located in urban areas, not rural areas. Thus, agricultural sector policies are not a solution to today's widespread rural structural adjustments nor are they likely to contribute to future rural job creation. Because such policies maintain the net cash income of the sector, however, they may ease the economic stress and slow the pace of change in farm-dependent rural communities.

Because evidence of a fundamental decline in U.S. competitiveness is unclear, and because of the very real risk that a targeted program of industrial assistance would be primarily protectionist (attempting to prevent adaptation and change in the U.S. economy), sectoral policy does not now seem an attractive component of rural policy.

Territorial Policy

Rural development policy has most often focused on strategies to ameliorate differentials in levels of economic activity, growth, and rates of return between rural and urban "regions" (and to a lesser extent among rural places). Mobility of resources is an important way of redressing such differences. In fact, the U.S. economy has been characterized by its capacity to move capital across sectors and between regions (and world wide) in response to changing market forces. Large numbers of people have followed as economic opportunities shifted. The movement of individuals from areas of low returns to areas of higher returns is not without substantial economic and psychic cost, and given the importance of "place" in our Federal system, it has serious political costs as well. But public intervention to achieve more "balanced growth" is not necessarily without cost.

One way to understand the problem is in terms of the possible motivations for national rural development policy interventions. There are only two: efficiency and equity. The efficiency rationale typically involves asserting some form of market failure which results in underperformance of the rural economy. The political attractiveness of the efficiency rationale is that policies to improve efficiency imply that a higher level of national output can be achieved with the same level of inputs. Rural development policies that overcome market failures create more rural jobs, but they are not jobs lost to urban America.

A related argument attributes regional differences (especially rural poverty) to low factor productivity resulting from environmental or infrastructure deficiencies in the region. An obvious solution to this situation would be to allow (encourage) interregional migration. But, investments in a region's infrastructure might increase rates of return more. If so, rural infrastructure investment policies are motivated primarily by efficiency objectives.

The equity rationale, of course, is that whether or not the observed geographic distribution of development is efficient, the resulting differentials in incomes, jobs, and well-being are unacceptable. Even if correcting these distributional inequities involves real costs, e.g., a reduction in national output, rural development policy interventions are justified by this rationale.

While equity arguments have sometimes been a politically salient rationale for advocates of a national rural (or urban) development policy, they have seldom been dominant in the targeting of assistance offered by specific programs. (Witness the Economic Development Administration which has made nearly 80 percent of the Nation eligible for assistance, in part by legislative action blocking the dedesignation of places whose most recent measures of economic stress would otherwise disqualify them). Thus, most of the programs developed to implement policy have been administered as a response to presumed market failures or inadequate infrastructure. But the analytical foundation for asserting widespread failure of information or capital markets, or for preferring infrastructure investment to migration, is virtually nonexistent. Under these conditions it is not surprising that there is considerable skepticism among social scientists and politicians alike about the effectiveness of a place-oriented rural development policy that assumes each and every community assisted can and will grow, if only the "right set" of public investments is provided.

Most past Federal programs specifically aimed at rural economic development (e.g., Appalachian Regional Commission, Tennessee Valley Authority, Area Redevelopment Administration, and Economic Development Administration) have devoted the majority of their funds to public infrastructure, largely to serve goods-producing firms. There is little reason, however, to believe that future growth patterns in the U.S. economy generally will favor large increases in the absolute number or share of goods-producing jobs. Thus, there is little reason to believe that the expansion or location of manufacturing enterprises in rural areas will play a major role in solving existing economic stress. This raises serious questions about the future effectiveness of rural policy that focuses primarily on financing traditional kinds of goods-producing, industry-serving infrastructure, and promote programs of local "smokestack chasing." Future rural infrastructure needs are more likely to be for facilities that reduce rural disadvantage in access to information (and communication).

Rural economic policies need to reflect realistic assessments of the process of structural economic change taking place in the U.S. economy, and potential futures of individual rural areas--their place in economic space, and the degree of urbanization of their region. These policies need to accommodate futures of stability or decline, not just growth. The role of State government has been substantially enhanced by the difficulty of addressing the diversity of rural conditions with national policy and programs. At all levels of government, however, we have been unable to envision and unwilling to design rural policy that includes the reality of decline, preferring instead the myth of universal growth.

The great diversity of rural economies, and the fact that economic stress is not the experience for all rural communities, increases the importance of targeting the public funds available for rural economic development and effectively coordinating programs at the local level. But many rural communities lack the institutional capacity to mobilize local resources, to utilize Federal and State programs, and to develop and carry out successful initiatives in cooperation with the private sector to stabilize or expand their local economies, or to plan for orderly decline. There is an important place for government-supported programs that facilitate a process of rural institutional capacity building, often called community development. Various models exist, including the Federal-State-local partnership of the Cooperative Extension system.

Clearly, an achievable goal for U.S. policy that focuses on rural economic development for the 1980's and 1990's is coping with change. Such a policy is most likely to permit rapid overall U.S. growth, provide new opportunities to reemploy displaced rural (and urban) workers, and generate a political climate that makes public funds available for programs to ameliorate the economic stress of structural change.

Human Resource Policy

Outmigration from rural to urban areas was the dominant theme of U.S. population movement from the turn of the century until the 1970's. It is the dominant theme again in the 1980's.

The 25 years from 1945 to 1970 was a period of particularly rapid rural outmigration, largely because of the technological revolution in farming and the dramatic decline in the number of farms and farm population. It is not unusual to find rural counties in the Great Plains, the Corn Belt, and the deep South that reached their peak population in 1900-1910, and now have only 50 or 60 percent as many residents. Because young people are much more likely to move than older people (migration rates for people in their 20's are five times the rates of those in their 60's), the sustained period of outmigration has left the nonmetro United States with a lower share of people of prime working age (20 to 44) than the metro United States. This is a serious constraint to future rural job growth for which there are no politically viable policy solutions.

Since many rural youth end up spending their working lives in urban areas, the success of rural educational systems has a bearing on the capability and skills of both our rural and urban work force. Unfortunately, average rural educational attainment is lower, and the average high school drop-out rate is higher than in our urban areas. Regional variations are noticeable, with the rural South exhibiting particularly serious educational disadvantage. These human resource problems also have their impact within rural labor markets. While cause and effect are not easy to sort out, and other factors are also at work, the relatively low-skill, low-wage occupational structure in rural areas is importantly related to the educational attainment of rural workers. In the manufacturing sector, the different occupational structure of rural firms has been a major source of slow job growth. Between 1979 and 1985, U.S. manufacturing employment declined by 6 percent. But white collar manufacturing employment actually grew by 10 percent, while blue collar employment declined by 15 percent. Because blue collar jobs make up 75 percent of nonmetro manufacturing employment, decline in blue collar jobs has been disproportionately a rural labor market adjustment.

Most of the burden of the economic adjustments occurring in rural America falls on the human resources--displaced industrial workers, displaced farmers and other proprietors, and members of their households. Problems of job loss are exacerbated by difficulties individual workers may face in shifting from production jobs to white collar jobs in the service sector. Skills gained in farming, mining, and blue-collar manufacturing employment frequently are of little direct use in the services sector. Also, pay scales are substantially lower in many parts of the services sector. Most who succeed in making the occupational transition may have to accept changes in job tasks. Many may have to move their residences to find new jobs.

Rural workers, particularly in agriculture, are more likely to have been self-employed--often in an enterprise spanning several generations--which may also make occupational shifts more difficult. Thus, human resource policies that equip people for major changes in occupation, and that rely on broad multi-county, regional, and national labor markets in which to seek reemployment opportunities for displaced rural workers, are critical to successful amelioration of current rural economic stress.

Unfortunately, not all displaced workers will make a successful transition to new private sector jobs. Older workers, those with work-limiting disabilities, and those who lack basic educational skills will be difficult (sometimes impossible) to place. For these people, as well as many of the long-term rural poor, Federal and State public welfare programs, not labor market programs, will determine their future well-being.

Policy Choices

Increased integration of national and international markets, macro and fiscal policies that worsened the United States competitive position, and the changing industrial and employment structure of the U.S. economy have led to widespread stagnation in rural economies in the 1980's. The resulting economic stress has been especially serious in rural areas dependent on natural resources, including agriculture, and in manufacturing counties. Our analysis of rural conditions and the economic forces at work leads to several observations about alternatives for future rural policy that may better inform the policy choices that are made.

- The economic adjustments now creating stress in rural areas present a dilemma for territorial strategies. Promoting growth where people currently live and in occupations or industries in which they now work is the least disruptive to existing community and family structures, and is the most politically attractive. But current rural economic adjustments appear to result largely from real competitive disadvantages, not failures of information or capital markets, or from generally inadequate rural infrastructure. Thus, rural policy that provides public subsidies for development in-place often traps resources in inefficient businesses or locations. The overall regional and national economy is better served by policy that facilitates a smooth and rapid movement of capital and labor from weaker to stronger industries, and from less competitive to more competitive locations.

- Policies that provide protection to industries that can be modernized and become more competitive have many advocates. There are, however, serious questions about how to identify specific industries or firms to assist, and it is difficult to end programs of protection once they are begun. Longrun prosperity for rural areas cannot be achieved by subsidizing certain sectors or firms to protect them from a highly competitive world economy. Such subsidies are costly. They stifle creativity and new enterprise development. They may not even stem near-term job losses because their success often depends on adoption of labor-saving technologies. Ultimately, they only postpone inevitable structural adjustments.

- The future course of farm employment is almost certainly one of decline. There is no near-term prospect of employment recovery in mining and energy industries, and future job gains in rural manufacturing seem unlikely to provide the same impetus for rural growth that they did in the 1960's and early 1970's. Thus, rural economic development policy too closely tied to revitalization of these sectors is unlikely to succeed. In particular the declining significance of agriculture as an employer of rural workers and as a source of rural income has made farm policy ineffective as a strategy to improve general rural well-being. The interests of the agriculture sector and the territorial needs of rural areas would be better served by treating each with separate policies that have distinct objectives.

- Externalities, i.e., mismatches between who benefits and who pays for certain activities, are often used as an economic rationale for public policy intervention. For national rural development policy, the strongest case for the existence of externalities can be made for education and training programs. Many rural communities undergoing structural change will be unable to capture the benefits of higher spending on improved basic education or occupational and skill training and retraining, because graduates of these programs will often leave the community to find better labor market and entrepreneurial opportunities. States may face a similar problem in capturing the benefits of human resource investments. Thus, Federal programs to improve the human capital endowments of rural youth and the rural workforce (including workers dislocated in the current industrial restructuring) are the only way to overcome chronic underinvestment in rural human resources. They also have a major impact on overall economic performance of the Nation, not just on successful rural development.

- Diversity among rural communities makes the task of designing a national rural development policy more difficult. Some rural areas may need assistance, others do not, and the kind of assistance likely to be needed varies from State-to-State, and community-to-community. This situation enhances the role of States in developing and delivering rural programs. States may be able to promote collaboration among nearby rural communities, helping each one to identify a specialized role to play as a "neighborhood" in their rural region. Regional rural approaches might make possible some economies of greater scale and the attractiveness of larger and more varied labor markets, thus enhancing the range of feasible development options. Rural diversity also strongly implies that targeting of assistance is important.

- Rural communities and rural people must shoulder the major responsibility for identifying opportunities for local economic development and mobilizing resources to deal with structural change.

41

Local efforts will not assure the growth of every rural community, and collectively they will fall short of generating enough rural jobs for all our current rural residents. Still, to stem the outflow of rural incomes to urban areas and overseas, rural consumers can sometimes be offered more goods and services produced locally. New business startups show considerable potential to improve the performance of many rural economies and generate new job opportunities. Rural businesses can often overcome cost disadvantages due to remote location by producing specialized goods and services that fill market niches. Public policy that facilitates new rural enterprise creation, by reducing information and transactions costs for private providers of venture capital, can assist in assuring the availability of financing for rural development. The availability of other services to local entrepreneurs, e.g., management, accounting, and marketing services, can also enhance the success rate of small business startups.

- National and international markets set overall constraints, but the success of individual local rural economies still depends importantly on the entrepreneurial decisions of individual firms. The community environment in which these decisions are made is also important. Many rural communities lack an organized institutional and leadership base that could enable them to identify and pursue local economic development opportunties aggressively. Public policy that builds the capacity of local institutions to realistically assess their comparative economic advantage, identify competitive opportunities, and marshal the public and private resources to exploit these opportunities can make a difference to the future development of rural communities.

- There are numerous physical infrastructure problems in rural areas that are real constraints to future growth, but probably not the infrastructure problems that were the major targets of past Federal economic development programs. Those targeted programs looked most often toward the growth of goods-producing industry as the way to achieve economic development, and that does not appear to be a likely scenario for most rural communities in the next several years. A more important constraint to future rural job creation in the service sector is likely to be the inadequacy of rural information and communications infrastructure.

- Many of the site-specific infrastructure investments that rural communities want to undertake (e.g., industrial site development) have very limited spatial effects and require modest levels of funding. Given other competing national priorities, a lack of evidence of a shortage of funds for such projects, and political consensus on shifting the responsibility to State and local governments in our Federal system, there is little reason for a major Federal role in funding these projects. Most of the projects' benefits will be captured locally and users might well be charged fees to recover most of the costs.

Ultimately, the choice of national rural development policy is political, a balancing of the interests of groups whose future opportunities are being affected by widespread stress and structural change in the rural economy. Given the diversity of rural conditions and interests, much of the responsibility for devising program strategies to deal with rural stress will fall to State governments, and successful implementation of programs will depend on the leadership of rural communities. There are, however, significant externalities resulting from rural structural change that provide the economic rationale for a Federal role. That role includes creating a macro environment conducive to economic growth, facilitating multi-state or multi-community approaches to solving rural problems, and assuring adequate levels of investment in rural human resources. The Federal Government also has a comparative advantage in providing information and conducting analyses of broad national and rural economic change that help to shape policy.

Some will argue for a broader Federal role based on their perceptions of inequity resulting from the rural stress of structural change. There are human costs associated with geographic and occupational mobility, just as there are economic (and budget) costs associated with policies to slow the process of change. Historically, the strong performance of the U.S. economy has been enhanced by its ability to adapt to changing technologies and marketplace conditions. There appears to be little disagreement that future adaptation will be required, and that overall, public policy should be designed to facilitate that process. There is, however, considerable debate about the rate at which structural change should proceed, and the role of public policy in easing the adjustment burden for displaced people and impacted communities.

☆U.S.GOVERNMENT PRINTING OFFICE:1987-716-000/02104